

# **TOSHIBA**

## **SERVICE MANUAL**

# **VIDEO CASSETTE RECORDER**

## ***V-852EW***

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## TOTAL CONTENTS

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1. Precautions
2. Reference Information
3. Product Specifications
4. Disassembly and Reassembly
5. Alignment and Adjustment
6. Exploded View
7. Replacement Parts List
8. Block Diagram
9. PCB Diagrams
10. Schematic Diagrams

# 1. Precautions

1. Be sure that all of the built-in protective devices are replaced. Restore any missing protective shields.
2. When reinstalling the chassis and its assemblies, be sure to restore all protective devices, including : control knobs and compartment covers.
3. Make sure that there are no cabinet openings through which people--particularly children --might insert fingers and contact dangerous voltages. Such openings include the spacing between the picture tube and the cabinet mask, excessively wide cabinet ventilation slots, and improperly fitted back covers.

If the measured resistance is less than 1.0 megohm or greater than 5.2 megohms, an abnormality exists that must be corrected before the unit is returned to the customer.

4. Leakage Current Hot Check (See Fig. 1-1) :  
Warning : Do not use an isolation transformer during this test. Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI C101.1, *Leakage Current for Appliances*), and Underwriters Laboratories (*UL Publication UL1410, 59.7*).
5. With the unit completely reassembled, plug the AC line cord directly the power outlet. With the unit's AC switch first in the ON position and then OFF, measure the current between a known earth ground (metal water pipe, conduit, etc.) and all exposed metal parts, including : antennas, handle brackets, metal cabinets, screwheads and control shafts. The current measured should not exceed 0.5 milliamp. Reverse the power-plug prongs in the AC outlet and repeat the test.
6. X-ray Limits :  
The picture tube is designed to prohibit X-ray emissions. To ensure continued X-ray protection, replace the picture tube only with one that is the same type as the original.

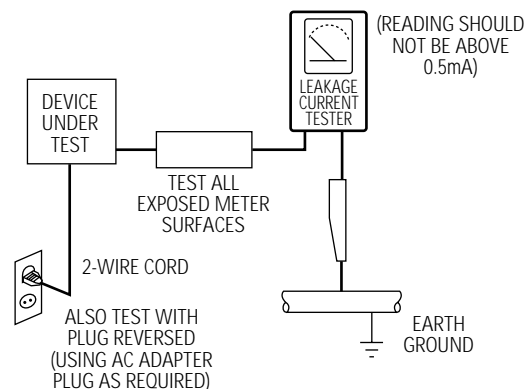




Fig. 1-1 AC Leakage Test

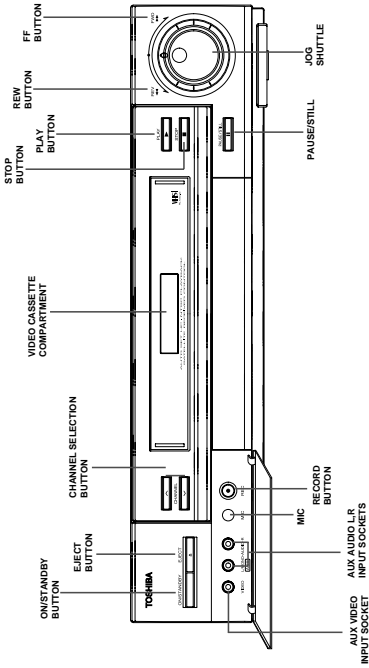
7. Antenna Cold Check :  
With the unit's AC plug disconnected from the AC source, connect an electrical jumper across the two AC prongs. Connect one lead of the ohmmeter to an AC prong.  
Connect the other lead to the coaxial connector.
8. High Voltage Limit :  
High voltage must be measured each time servicing is done on the B+, horizontal deflection or high voltage circuits.  
  
Heed the high voltage limits. These include the *X-ray protection Specifications Label*, and the *Product Safety and X-ray Warning Note* on the service data schematic.
9. Some semiconductor ("solid state") devices are easily damaged by static electricity. Such components are called Electrostatically Sensitive Devices (ESDs); examples include integrated circuits and some field-effect transistors. The following techniques will reduce the occurrence of component damage caused by static electricity.
10. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging Wrist-strap device. (Be sure to remove it prior to applying power--this is an electric shock precaution.)

11. High voltage is maintained within specified limits by close-tolerance, safety-related components and adjustments. If the high voltage exceeds the specified limits, check each of the special components.
12. Design Alteration Warning :  
Never alter or add to the mechanical or electrical design of this unit. Example : Do not add auxiliary audio or video connectors.  
Such alterations might create a safety hazard.  
Also, any design changes or additions will void the manufacturer's warranty.
13. Hot Chassis Warning :  
Some TV receiver chassis are electrically connected directly to one conductor of the AC power cord. If an isolation transformer is not used, these units may be safely serviced only if the AC power plug is inserted so that the chassis is connected to the ground side of the AC source.  
  
To confirm that the AC power plug is inserted correctly, do the following : Using an AC voltmeter, measure the voltage between the chassis and a known earth ground. If the reading is greater than 1.0V, remove the AC power plug, reverse its polarity and reinsert. Re-measure the voltage between the chassis and ground.
14. Some TV chassis are designed to operate with 85 volts AC between chassis and ground, regardless of the AC plug polarity. These units can be safely serviced only if an isolation transformer inserted between the receiver and the power source.
15. Never defeat any of the B+ voltage interlocks.  
Do not apply AC power to the unit (or any of its assemblies) unless all solid-state heat sinks are correctly installed.
16. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the positive lead; always remove the instrument's ground lead last.
17. Observe the original lead dress, especially near the following areas : Antenna wiring, sharp edges, and especially the AC and high voltage power supplies. Always inspect for pinched, out-of-place, or frayed wiring. Do not change the spacing between components and the printed circuit board. Check the AC power cord for damage. Make sure that leads and components do not touch thermally hot parts.
18. Picture Tube Implosion Warning :  
The picture tube in this receiver employs "integral implosion" protection. To ensure continued implosion protection, make sure that the replacement picture tube is the same as the original.
19. Do not remove, install or handle the picture tube without first putting on shatterproof goggles equipped with side shields. Never handle the picture tube by its neck. Some "in-line" picture tubes are equipped with a permanently attached deflection yoke; do not try to remove such "permanently attached" yokes from the picture tube.
20. Product Safety Notice :  
Some electrical and mechanical parts have special safety-related characteristics which might not be obvious from visual inspection. These safety features and the protection they give might be lost if the replacement component differs from the original--even if the replacement is rated for higher voltage, wattage, etc.  
  
Components that are critical for safety are indicated in the circuit diagram by shading, (  or  ).  
Use replacement components that have the same ratings, especially for flame resistance and dielectric strength specifications. A replacement part that does not have the same safety characteristics as the original might create shock, fire or other hazards.

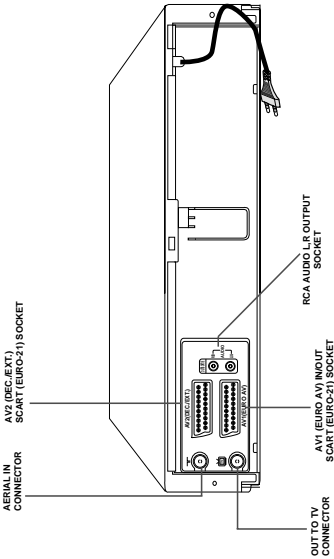
## 2. Reference Information

### 2-1 Operation of Controls

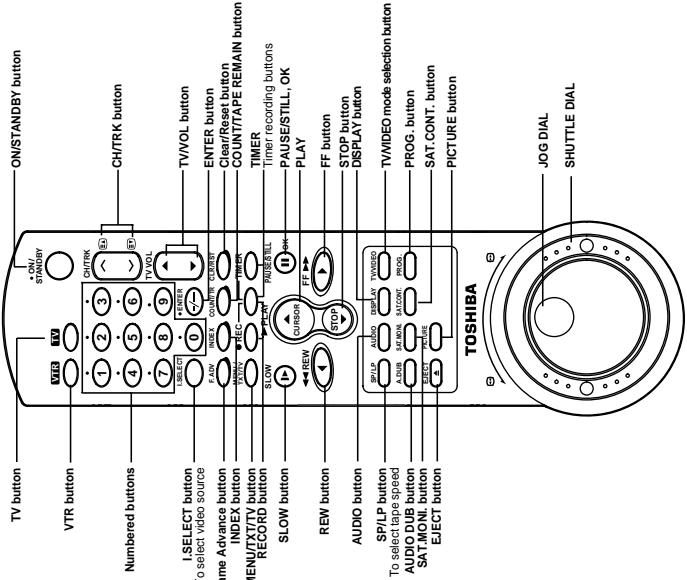
Front View of the VCR



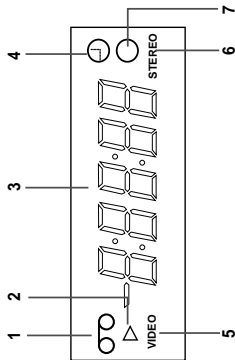
Rear View of the VCR



Infrared Remote Control



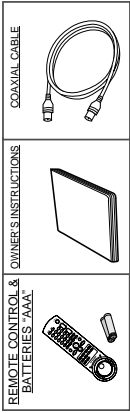
Display Indicator



- 1 Cassette loaded indicator
- 2 Playback indicator
- 3 Multi-function display
- 4 Timer indicator
- 5 VIDEO indicator
- 6 Hi-Fi stereo indicator
- 7 Rec indicator

Accessories

You have just purchased a TOSHIBA Video Cassette Recorder (VCR). Together with your VCR, you will find the following accessories in the box.
















Deciding How to Connect Your VCR

You must take into account various factors when connecting audio or video systems:

- ◆ Types of connectors available on your systems
- ◆ Systems connected permanently to the VCR (satellite receiver for example) or temporarily (camcorder for example)

Your VCR is equipped with the following connectors.

Connector	Location	Type	Direction	Recommended Use
AV1	Rear 	SCART	In/Out 	◆ Television ◆ Other VCR ◆ Satellite receiver
AV2	Rear 	SCART	In/Out 	◆ Decoder for scrambled Pay TV broadcasts Example: CANAL+ ◆ Other VCR ◆ Satellite receiver
AUX	Front 	Audio/Video RCA	In 	◆ Audio Hi-Fi system ◆ Camcorder
Audio output	Rear 	Audio RCA	out 	◆ Hi-Fi Stereo VCR ◆ Audio Hi-Fi system
OUT TO TV	Rear 	75 $\Omega$ coaxial	Out 	◆ Television
IN FROM ANT.	Rear 	75 $\Omega$ coaxial	In 	◆ Aerial ◆ Cable television network ◆ Satellite receiver



 Whenever you connect an audio or video system to your VCR, ensure that all elements are switched off.  
Refer to the documentation supplied with your equipment for detailed connection instructions and associated safety precautions.

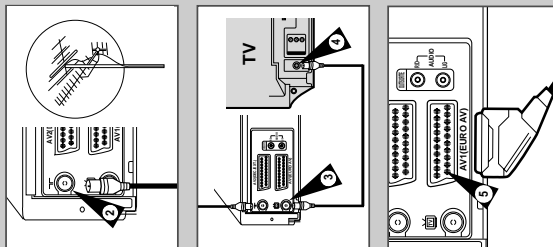
### Connecting Your VCR to the TV using the Coaxial Cable and SCART cable

To receive television programmes a signal must be received from one of the following sources:

- ◆ An outdoor aerial
- ◆ An indoor aerial
- ◆ A cable television network
- ◆ Satellite receiver

Make sure that both the television and the VCR are switched off before connecting the cables.

- 1 Remove the aerial or network input cable from the television.
- 2 Connect this cable to the 75Ω coaxial socket marked  on the rear of your VCR.
- 3 Plug the coaxial cable supplied into the  socket on your VCR.
- 4 Plug the other end of the coaxial cable into the connector previously used for the aerial on the television.
- 5 To obtain better quality pictures and sound on your television, you can also connect your VCR to the television via the SCART cable if your television is equipped with this type of connection. Connect one end of the SCART cable to the AV1(EURO AV) socket on the rear of the VCR.
- 6 Plug the other end into the appropriate connector on the television.



9

### Connecting a Decoder for scrambled PAY TV broadcasts

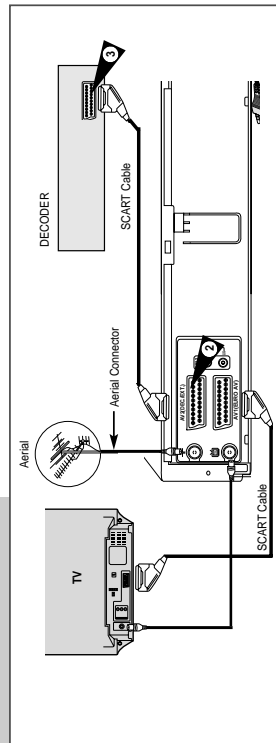
This VCR is fully equipped to receive scrambled Pay TV broadcasts.

Example: CANAL+ or Premiere broadcasts.

You can:

- ◆ Record a scrambled programme while watching another channel
- ◆ Record another channel while watching a scrambled programme

- 1 Connect the VCR to the television as indicated on page 9.
- 2 Plug the SCART cable with the decoder into the AV2 (DEC./EXT.) socket on the rear of the VCR.
- 3 Plug the other end into the decoder.

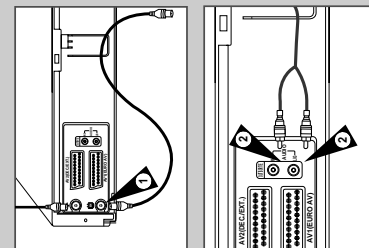


### Connecting the Audio Output Cable

You can connect your VCR to a Hi-Fi system.

Example: You wish to take advantage of the quality of your Hi-Fi stereo system when watching a programme or recording via your VCR.

- ◆ Regardless of the type of connection chosen, you must always connect the coaxial cable supplied. Otherwise, no picture will be visible on the screen when the VCR is switched off.
- ◆ Make sure that both the television and the VCR are switched off before connecting the cables.

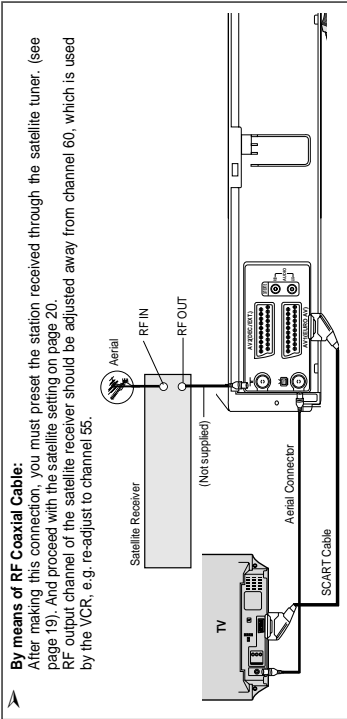
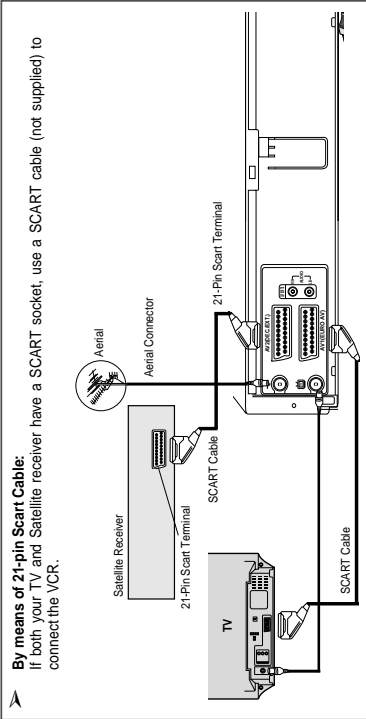


- 1 Connect the coaxial cable or SCART as indicated on page 9.
- 2 Plug the audio output cable into the audio connectors on the rear of your VCR.
- Respect the colour coding of the left and right channels.
- 3 Plug the other end of the audio cable into the appropriate input connectors on your Hi-Fi stereo system.

10

Connecting a Satellite Receiver

- This VCR can be connected to your satellite receiver and you can enjoy watching or recording satellite programmes through the VCR.
- The satellite receiver control functions are activated when connection is made to one of the satellite receivers found on the list of compatible satellite receivers, provided that the settings from pages 19 to 22 have been performed. Also make absolutely sure that the satellite receiver is installed in a location as per the figure below.
- Also refer to the operating instructions for the satellite receiver.
- The unit may not operate properly if it has not been installed in a satisfactory position.



Put the satellite receiver on the top of the VCR as shown below.  
Do not block the sensor window.

The infrared signals come out of the sensor window and the front of the VCR. Then they bounce off walls and other objects in the room and are received by the satellite receiver.  
The VCR sends out infrared signals to your satellite receiver even during timer programme recording.

**Note**  
If the channels cannot be controlled properly because the infrared signal fails to reach the satellite receiver, change the position of the satellite receiver on the VCR so that it can receive the signal.

Plug & Auto Set Up

- Your VCR will automatically set itself up when it is plugged into the mains for the first time. TV stations will be stored in memory. The process takes a few minutes. Your VCR will then be ready for use.
- 1 Connect the coaxial cable as indicated on page 9.  
(Connecting Your VCR to the TV Using the Coaxial Cable)
  - 2 Plug the VCR into the mains. The LANGUAGE SET menu will be displayed.
  - 3 Press the corresponding **▲** or **▼** buttons to select required language. And then **OK** to store the language selected. A message appears "AUTO SET-UP WILL BE STARTED. CHECK ANTENNA AND TV CABLE CONNECTION".
  - 4 Press **OK** to proceed. The COUNTRY SELECTION menu will be displayed.
  - 5 Press the **▲**, **▼** or **◀**, **▶** buttons to select your country, and then press **OK** to proceed.
  - 6 The process will finish after a few minutes. Then the date and time are set automatically from the broadcast signal, but this function will not operate if there is no Teletext signal.

COUNTRY SELECTION

German	D	Austria	A
Belgium	B	Hungary	HU
Denmark	DK	Poland	PL
Finland	FIN	Czech	CZ
Italy	I	Turkey	TR
Netherlands	NL	Greece	GR
Norway	N	Croatia	OTHERS
Spain	E		
Sweden	S		
Portugal	P		
Swiss	CH		

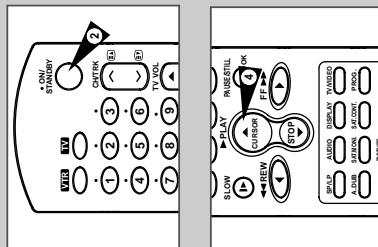


## Tuning Your Television for the VCR

You must tune your television for the VCR only if you are not using a Scart cable

➤ To view pictures from your VCR when a Scart cable is used, the television must be set to the audio/video mode (AV).

- 1 Switch on the television.
- 2 Switch on the VCR by pressing **ONSTANDBY** on the front of the VCR or on the remote control.
- 3 Select a programme position on the television to be reserved for use with your VCR.
- 4 Insert the video cassette in the VCR. Check that the VCR starts reading the cassette, if not, press **PLAY** (▶) button.
- 5 Start a scan on your television or set the television to UHF channel 60.
- 6 Fine tune the television until the pictures and sound are obtained clearly.
- 7 If you cannot find the pictures and sound, or there is interference from nearby channels, it may be necessary to change the setting of the VCR output channel (see Solving Problems section of this manual).
- 8 When the picture and sound are perfectly clear, store this channel at the desired programme position on the television.  
**Result:** That programme is now reserved for use with your VCR.



13

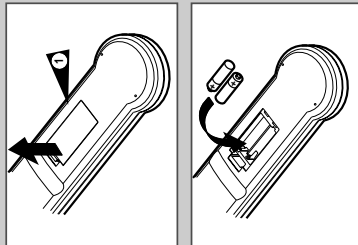
## Inserting Batteries in the Remote Control

You must insert or replace the batteries in the remote control when you:

- ◆ Purchase the video cassette recorder
- ◆ Find that the remote control is **no longer working** correctly

- 1 Push the tab in the direction of the arrow to release the battery compartment cover on the rear of the remote control.
- 2 Insert two AAA, R03 or equivalent batteries, taking care to respect the polarities:
  - ◆ + on the battery with + on the remote control
  - ◆ - on the battery with - on the remote control
- 3 Replace the cover by aligning it with the base of the remote control and pushing it back into place.

➤ Do not mix different battery types (manganese and alkaline for example).



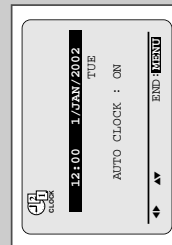
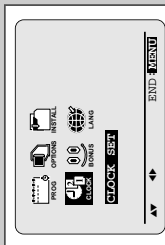
## Setting the Date and Time

Your VCR contains a 24-hour clock and calendar used to:

- ◆ Automatically stop programme recording
- ◆ Preset your VCR to record a programme automatically

You must set the date and time when:

- ◆ You purchase the video cassette recorder
  - ◆ The date and time are set automatically from the broadcast signal, but this function will not operate if there is no teletext signal.
  - ◆ Do not forget to reset the time when you change clocks from winter to summer time and vice versa.



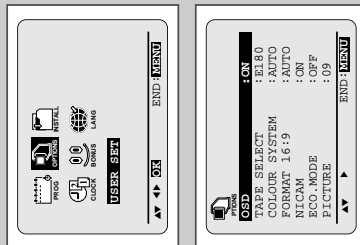
- 1 Press **MENU** on the remote control.  
**Result:** The programming menu is displayed.
- 2 Press the corresponding **▲**, **▼** or **◀**, **▶** buttons to select the **CLOCK SET** option.
- 3 Press the **OK** button to select this option.  
**Result:** The **CLOCK SET** menu is displayed.
- 4 Press **◀** or **▶** to select the hour, minutes, day, month and year.  
**Result:** The option selected flashes.
- 5 Press the **▲** or **▼** buttons to increase or decrease the value.  
**Result:** The day of the week is displayed automatically.
  - You can hold the **▲** or **▼** buttons down to scroll more quickly through the values.
- 6 On completion, press **MENU** twice to exit the menu.

14

## Displaying/Hiding On-Screen Information

Your VCR displays most information both on the VCR and the television.  
You can choose to display or hide this information on the television screen (except for the Index and Programming MENU, which cannot be hidden).

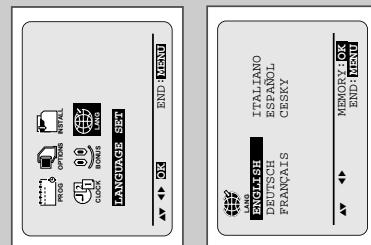
- 1 Press MENU on the remote control.  
**Result:** The programming menu is displayed.
- 2 Press the corresponding **▲**, **▼** or **◀**, **▶** buttons to select the **USER SET** option.
- 3 Press the OK button to select this option.  
**Result:** The **USER SET** menu is displayed.
- 4 Press the corresponding **▲** or **▼** buttons, until the OSD option is selected.
- 5 **To...** Press **◀** or **▶**, until..  
Display on-screen information **ON** is displayed.  
Hide on-screen information **OFF** is displayed.
- 6 On completion, press MENU twice to exit the menu.



## Choosing Your Language

You can change the language in which information is displayed on the screen.

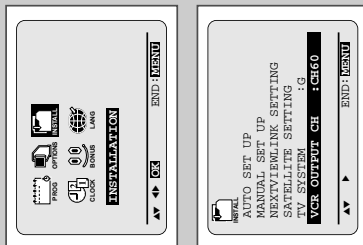
- 1 Press MENU on the remote control.  
**Result:** The programming menu is displayed.
- 2 Press the corresponding **▲**, **▼** or **◀**, **▶** buttons to select the **LANGUAGE SET** option.
- 3 Press the OK button to select this option.  
**Result:** The **LANGUAGE SET** menu is displayed.
- 4 Select the required language by pressing the **▲**, **▼** or **◀**, **▶** buttons.
- 5 Press OK to store the language selected.
- 6 Press MENU to exit the menu.  
**Result:** From now on, all the on-screen information will be displayed in the language selected.



## Setting the VCR Output Channel

Your VCR output channel may need to be changed if the pictures suffer from interference or if your TV cannot find the pictures. Also, you can change the VCR output channel to adjust the frequency in which information is displayed on the screen.

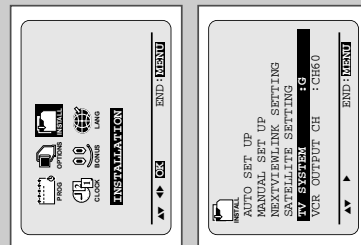
- 1 Press MENU on the remote control.  
**Result:** The programming menu is displayed.
- 2 Press the corresponding **▲**, **▼** or **◀**, **▶** buttons to select the **INSTALLATION** option.
- 3 Press the OK button to select this option.  
**Result:** The **INSTALLATION** menu is displayed.
- 4 Press the **▲** or **▼** buttons, until the **VCR OUTPUT CH** option is selected.
- 5 Select the required output channel (CH21-CH69) by pressing the **◀** or **▶** buttons.
- 6 On completion, press MENU twice to exit the menu. Then tune your television again (see page 13).



## Selecting the RF OUT Sound Mode (B/G-D/K)

You can choose the sound mode (B/G or D/K) according to the TV set connected to your VCR.

- 1 Press MENU on the remote control.  
**Result:** The programming menu is displayed.
- 2 Press the corresponding **▲**, **▼** or **◀**, **▶** buttons to select the **INSTALLATION** option.
- 3 Press the OK button to select this option.  
**Result:** The **INSTALLATION** menu is displayed.
- 4 Press the corresponding **▲** or **▼** buttons, until the **TV SYSTEM** option is selected.
- 5 Press the **▶** button to select G or K.
- 6 On completion, press MENU twice to exit the menu.



## Presetting the Stations Automatically



You do not need to preset the stations if you have already set them automatically (see Plug & Auto Set Up on page 12). Your VCR contains a built-in tuner used to receive television broadcasts.

You must preset the stations received through the tuner. This can be done:

- ◆ Plug & Auto Set up (see page 12)
- ◆ Automatically
- ◆ Manually (see page 18)

You can store up to 80 stations.



To enable the VCR to decode a scrambled TV station, the decoder must be activated after the scan (see pages 18).

- 1 Press the **MENU** button on the remote control.  
**Result:** The programming menu is displayed.
- 2 Press the corresponding **▲**, **▼** or **◀**, **▶** buttons to select the **INSTALLATION** option.  
**Result:** The **INSTALLATION** menu is displayed.
- 3 Press the **OK** button to select this option.  
**Result:** The **MANUAL SET UP** menu is displayed.
- 4 Press the corresponding **▲** or **▼** buttons, until the **AUTO SET UP** option is selected. And then press the **▶** button to select this option.  
**Result:** The country selection **MENU** is displayed ( see page 12)
- 5 Press the **▲** or **▼** buttons to select your country.  
 The VCR searches for the stations according to a preset preference list corresponding to the country that you have selected.
- 6 Press **OK** button.  
**Result:** A message appears, indicating that any channels already preset on your VCR will be deleted.
- 7 Press **OK** to start the auto scanning.  
**Result:**
  - ◆ The **PLEASE WAIT** indication flashes on the television screen.
  - ◆ The first frequency band is scanned and the first station found is displayed and stored.
  - ◆ The VCR then searches for the second station and so on.
  - ◆ When the automatic scanning procedure has finished, the VCR switches automatically to programme 1.

➤ The number of stations automatically stored by the VCR depends on the number of stations that it has found. (country, reception conditions, etc.)
- 8 If you wish to cancel the auto scanning before the end, press the **MENU** button three times to exit the menu.



- ◆ The time and date are set automatically from the broadcast signal. If the signal is weak or ghosting occurs, the time and date may not be set automatically. In this case, they should be set manually (see page 14).
- ◆ Once the auto scanning procedure has finished, some stations may have been stored more than once; select the stations with the best reception and delete the ones no longer required (see page 23).

## Presetting the Stations Manually

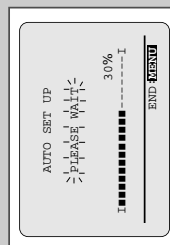
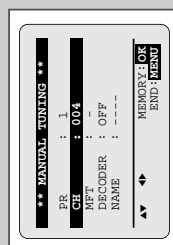
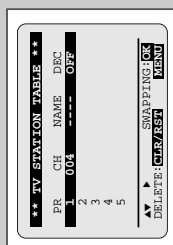
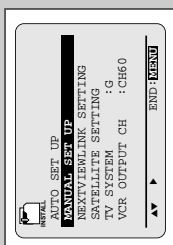
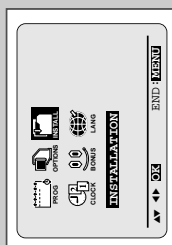


You do not need to preset the stations manually if you have already set them automatically.



To enable the VCR to decode a scrambled TV station, the decoder must be switched on.

- 1 Press the **MENU** button on the remote control.  
**Result:** The programming menu is displayed.
- 2 Press the corresponding **▲**, **▼** or **◀**, **▶** buttons to select the **INSTALLATION** option.  
**Result:** The **INSTALLATION** menu is displayed.
- 3 Press the **OK** button to select this option.  
**Result:** The **MANUAL SET UP** menu is displayed.
- 4 Press the **▲** or **▼** buttons to select **MANUAL SET UP** option.  
**Result:** The **TV STATION TABLE** menu is displayed.
- 5 Press the **▶** button to select this option.  
**Result:** The **MANUAL TUNING** menu is displayed.
- 6 Press the **▲** or **▼** buttons to select a programme number as required.
- 7 Press the **▶** button to preset the station.  
**Result:** The **MANUAL TUNING** menu is displayed.
- 8 Press the **◀** or **▶** buttons to start scanning.  
**Result:** The frequency band is scanned and the first station found is displayed.  
If you know the number of the channel you want, press the numeric buttons on the remote control for example, for channel E21, first press "0" and then press "2", "1" (see page 55).
- 9 Press the **▼** button, until the **DECODER** is selected.
- 10 Press the **◀** or **▶** button to activate or deactivate use of the decoder for the TV station, if necessary.
- 11 Press the **▲** or **▼** buttons until the **NAME** is selected.  
The station name is set automatically from the broadcast signal.
- 12 To change the programme's name, press the **▶** button.  
**Result:** The first letter of the name flashes.
- 13 **To...**  
Select a character in the name  
Press the **▲** or **▼** button until the required character is displayed (letters, numbers or "-" character).  
Move to the next or previous character  
Press the **▶** or **◀** buttons respectively.  
**If you...**  
**Then...**  
Wish to store the station displayed  
◆ Press the corresponding **▲** or **▼** buttons, until the **MFT** is selected.  
◆ Press the **◀** or **▶** buttons to adjust the picture, if necessary.  
◆ Press **OK** to store the station.  
Do not wish to store the station displayed  
◆ Press the corresponding **▲** or **▼** buttons, until the **CH** is selected.  
◆ Press the **◀** or **▶** buttons to go on scanning the frequency band and display the next station  
◆ Go back to the beginning of Step 14
- 15 Repeat this procedure from Step 6 onwards, until all the required stations have been stored.
- 16 On completion, press the **MENU** button three times to exit the menu.



17

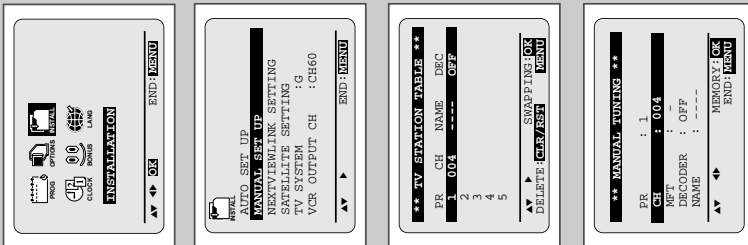
18

## Satellite Tuning

When the RF connection on the satellite receiver connection page has been performed, the following settings must be carried out in order to activate satellite control.  
These settings are not necessary when the 21-pin SCART cable has been used for the connection. (see page 11).

- 1 Press the **MENU** button on the remote control.  
**Result:** The programming menu is displayed.
- 2 Press the corresponding **▲**, **▼** or **◀**, **▶** buttons to select the **INSTALLATION** option.
- 3 Press the **OK** button to select this option.
- 4 Press the **▲** or **▼** buttons to select **MANUAL SET UP** option.
- 5 Press the **▶** button to select this option.  
**Result:** The **TV STATION TABLE** menu is displayed.
- 6 Press the **▲** or **▼** buttons to select a programme number as required.
- 7 Press the **▶** button to preset the station.  
**Result:** The **MANUAL TUNING** menu is displayed.
- 8 Press the **◀** or **▶** buttons to start scanning until the RF OUT channel of the satellite receiver is displayed.
- 9 Press the **OK** button to store the station, and then press the **MENU** button three times to exit the menu.

➤ RF output channel of the satellite receiver should be adjusted away from channel 60, which is used by the VCR.



19

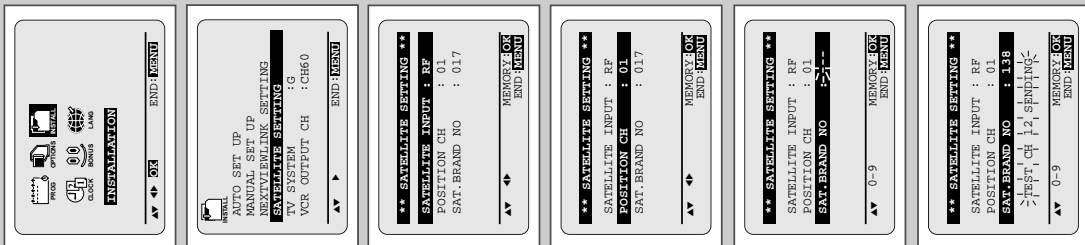
## Satellite Setting

Proceed with the setting instructions described below in order to activate the satellite receiver control functions.  
These settings are supported only by the satellite receivers found on the list of compatible satellite receivers (see page 22).

- 1 Press the **MENU** button on the remote control.  
**Result:** The programming menu is displayed.
- 2 Press the corresponding **▲**, **▼** or **◀**, **▶** buttons to select the **INSTALLATION** option.  
Then press the **OK** button to select this option.  
**Result:** The **INSTALLATION** menu is displayed.
- 3 Press the **▲** or **▼** buttons to select the **SATELLITE SETTING** option and then press the **▶** button to select this option.
- 4 Select **SATELLITE INPUT**, press the **◀** or **▶** buttons to select input position where the satellite receiver is connected.  

▶ RF → AV1 → AV2 → AUX
- 5 Select **POSITION CH** when **RF** has been selected.  
Press the **◀** or **▶** buttons to select position where the **RF OUT** of satellite receiver is memorized.
- 6 Press the corresponding **▲** or **▼** buttons to select **SAT-BRAND NO** (see page 22).  
**Result:** The first digit of receiver type number is flashed.
- 7 Press the numeric buttons to set receiver type number.  
**Result:** When you enter the receiver type, the VCR sends a test signal to the satellite receiver to make sure that the receiver type has been entered correctly. The signal will set the satellite channel to 12. If channel 12 is displayed on your satellite receiver, it means the receiver type is set correctly.  
Several types may be allocated to one brand.  
Enter one after the other until the channel shows 12.  
  - First check the list of compatible satellite receivers. (see page 22)
  - ◆ It is not possible to control a receiver which is not on the list of compatible satellite receivers.
- 8 On completion, press **OK** button to store satellite setting.  
Then press **MENU** button two times to exit the menu.

➤ Before pressing the numeric buttons to set receiver type, must set the remote controller switch to VCR.



20

## How to Preset the Type of Satellite Receiver

The satellite receiver mode (Power On or Off) must be set before attempting to perform timer recording.  
The procedure to set the mode can be divided into the following 3 types by satellite receiver. Check which one applies on the attached list before proceeding.

Preset Type	Controllable functions
<b>A</b>	No action needs to be taken. (The satellite receiver's power may even be OFF.)
<b>B</b>	Keep the satellite receiver's power OFF.
<b>C</b>	Keep the satellite receiver's power ON.

Please review the compatible satellite receiver list on page 22 before purchasing a new receiver. In order to assure satellite receiver control, Satellite Settings must be performed at the installation stage (see page 20).

- ◆ The VCR may not be able to control some types or brands of satellite receiver, due to the choice of remote control coding being beyond our control.
- ◆ Check that the satellite receiver can be properly controlled
- ◆ Try satellite broadcast timer recording once to check that timer recording works properly. (Refer to page 33)

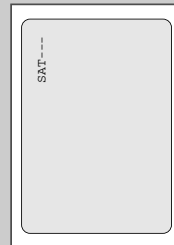
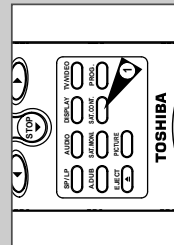
## How to Select the Satellite Channel (Satellite Control)

A connected satellite receiver can be controlled by this VCR. It is possible to record many different satellite channels whilst you are absent, as the VCR can automatically change satellite channels as well. You can select satellite channels by using the remote controller.

- Press the SAT.CONT. button on the remote controller.  
**Result:** "SAT - - -" is displayed on the screen and "SAT" is displayed on the front of the VCR.

- Press the numeric buttons to be selected channel.  
SAT 9: ⑨ ⑨ ⑨  
SAT 27: ② ⑦ ⑦  
You need to press the "0" numeric button to select one or two digit satellite channels.

- ◆ There will be a slight delay after pressing a button before channel change occurs. This is due to signal conversion.
- ◆ The range of satellite channels available for selection is 1 through 500.
- ◆ With some satellite receivers, it is not possible to select as many as 500 satellite channels.
- ◆ Some Satellite receivers may not be operated with its remote control. In these cases, operate the satellite receiver using its own remote control.



21

## List of Compatible Satellite Receivers

BRAND NAME	MODEL NAME	RECEIVER TYPE	PRESET TYPE	BRAND NAME	MODEL NAME	RECEIVER TYPE	PRESET TYPE
ABAST	AB2200	134	A	NETWORK		9, 16, 17	C
ALBA		1, 2, 3, 16, 17, 65, 66	C	NOKIA	SAT300S, SAT700S	143	A
AIDES		89	C	NOKIA	DV8500S	144	A
ALLSAT		5, 16, 23	C	NOKIA	9800s DVS	154	C
AMSTRAD	SRD400, SRD500	5	A	NORMENDE		17	C
AMSTRAD	SRD2000	124	A	OAK		112, 113, 114, 115	C
AMSTRAD	OTHER	3, 4, 17, 65, 66, 76, 77, 89, 91, 124	C	PACE	MSBULISS204G, PMA6	139	A
BECO	BS3000	145	B	PACE	MS331-G	139	A
BESTOFSEXPRESS		26	C	PACE	MS5000, MS51000	147	A
BIG BROTHER		7, 8, 17	C	PACE	2200	6	C
BT		17, 122, 123	C	PACE	OTHER	9, 16, 17, 23, 38	C
BUSH		2, 9, 16, 17, 65, 66	C	PANASONIC		17, 61	C
CABLE STAR		17, 101, 102, 103, 104	C	PHILIPS	STU1401	150	A
CABLE TIME		17, 101, 102, 103, 104	C	PHILIPS	STU1320	136	A
CANALSATELITE	CANAL+	133	A	PHILIPS	STV0510	73	A
CAMBRIDGE		17, 122, 123	C	PHILIPS	OTHER	16, 17, 24, 46, 73, 106	C
CHANNEL MASTER		2, 3, 10, 17	C	REDIFUSION		17, 25	C
CITICOM	COS170	141	B	RADIX	DELTA000	127	B
D2MAC DECODER		17, 72	C	RADIX	ALPHA20	135	A
DECAST-CASAT		72	C	REVOX		17, 21	C
DRAKE		17, 45	C	SABA	SSR-440	142	B
ECHOSTAR		13, 14, 17, 92, 93, 94	C	SAKURA		17, 65, 63, 68	C
FERGUSON		9, 15, 16, 17, 23, 38, 39, 59, 108	C	SALORA		17, 26, 27, 50, 51, 52	C
FIBA		40, 49, 70, 71, 96	C	SANSUNG		17, 36	C
GI		105, 106, 107, 108, 110	C	SCHMAGER		23, 43	C
GOODMANS	ST700	148	A	SCIENTIFICA/LANTA		116, 117, 118	C
GRUNDIG	GSRI	146	A	SENTRA		10, 17	C
GRUNDIG	GRD300	149	A	SIEMENS		17, 23	C
GRUNDIG	STR2200S	150	A	SKYMASTER		129	C
GRUNDIG	STR400AP, STR641	28	A	SONY		17, 30	C
GRUNDIG	OTHER	17, 13, 71, 125	C	STRONG		31, 130	C
HIRSCHMANN		11, 19, 47, 48	C	TATUNG/KIKKO		17, 32, 54, 56, 80, 81	C
HUTH		74	C	TECHNISAT		46, 41, 92, 99	C
HUTH	500FS	137	B	TECHNISAT	ARD1	140	A
IMPULSE		105, 106, 107, 108, 110	C	TELEDIRECT		23	C
ITTAKOVA		17, 26, 27, 50, 51, 52, 143, 144	C	TELEWIRE	3000DX	130	B
JERROLD		105, 106, 107, 108, 110	C	TEXSCAN		17, 119, 120	C
JAC	TL-AD1000	123	A	THOMSON	ASR11T	128	A
JAC	OTHER	17, 122	C	THOMSON	ASR80T	132	A
KATHREIN		12, 16, 20, 24, 29, 31, 46, 73, 97	C	THOMSON	OTHER	7, 17, 38	C
LENOX	VOLUBOX	151	C	TOSHIBA		17, 33, 34	C
LENCO		17, 49	C	TIPS	SAGEM	126	B
MACOM		111	C	TRISPAR		17, 31	C
MASPRO		17, 26, 64, 67	C	UNIDEN		17, 67	C
MATSUI	RD600	146	A	VIDEOTRON		17, 105, 106, 107, 108, 109, 121	C
MATSUI	OP10	128	A	VIDEOWAY		105, 106, 107, 108, 109, 110, 121	C
MATSUI	RD800	150	A	VISOPASS	OTHER	16, 24, 46	C
MATSUI	OTHER	12, 125	C	VISOPASS	DDMAC	73	A
MMITEC		21	C	VORTEC		36	C
MORGAN		43	C	MSI		17, 35, 37, 44, 93	C
MAGNA PALSAT	AB2000	96, 96	C	XSAT	CDTV200	131	A
NEC		17, 22, 57	C				

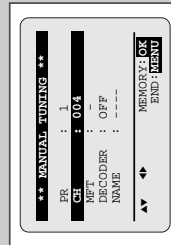
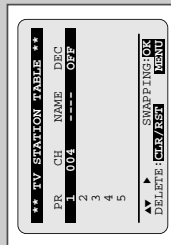
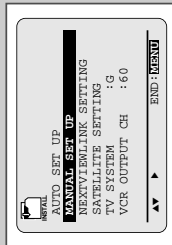
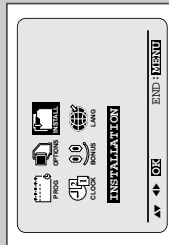
22

### Clearing a Preset Station

If you have stored a TV station:

- ◆ That you do not require
  - ◆ At the wrong programme position
- you can cancel it.

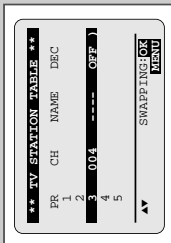
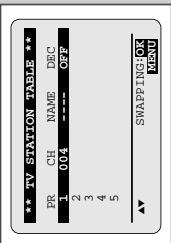
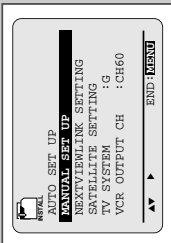
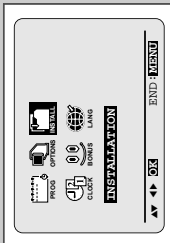
- 1 Press the MENU button on the remote control.  
Result: The programming menu is displayed.
- 2 Press the corresponding ▲, ▼ or ◀, ▶ buttons to select the **INSTALLATION** option.
- 3 Press the OK button to select this option.  
Result: The **INSTALLATION** menu is displayed.
- 4 Press the ▲ or ▼ buttons to select **MANUAL SET UP** option.
- 5 Press the ▶ button to select this option.  
Result: The **TV STATION TABLE** menu is displayed.
- 6 Press the corresponding ▲ or ▼ buttons, until the required preset TV station is selected. (PR)
- 7 Press the CLR/RST button.
- 8 Repeat the same procedure from Step 6 onwards until all the required stations have been cleared.
- 9 On completion, press the MENU button three times to exit the menu.



### Changing the Preset Station Table


You can rearrange the preset TV stations according to your own preferences programme number assigned to the station.

- 1 Press the MENU button on the remote control.  
Result: The programming menu is displayed.
- 2 Press the corresponding ▲, ▼ or ◀, ▶ buttons to select the **INSTALLATION** option.
- 3 Press the OK button to select this option.  
Result: The **INSTALLATION** menu is displayed.
- 4 Press the ▲ or ▼ buttons to select **MANUAL SET UP** option. And then press the ▶ button to select this option.  
Result: The **TV STATION TABLE** menu is displayed.
- 5 Press the corresponding ▲ or ▼ buttons, until the required preset TV programme is selected.  
Result: The selected station is displayed at the same time on the television screen.
- 6 To change the programme number assigned to a station press the OK button on the remote control. (For example, To move a TV station in programme 1 to programme 3)
- 7 Press the ▲ or ▼ buttons to select required position. And then press OK again to swap the position.
- 8 You can modify this station by repeating the same procedure from Step 5 onwards.
- 9 On completion, press the MENU button three times to exit the menu.



### Satellite Monitor functions

For Satellite Receiver with only ONE SCART socket:  
If the Satellite receiver has only one Scart output, Connect it to the BLUE input socket on the VCR. Use another Scart lead to connect the AV1 (EURO AV) Socket on the VCR to the TV.

 If the Satellite receiver has two SCART outputs, one to the VCR and another to the TV, you do not need to use this function.

To view Satellite when video is in standby or (not ECO. mode) recording a television station:

- 1 Press the SAT.MONI. button on the remote control once to select the AV2 (DEC/EXT.) scart. This will loop the satellite signal through the VCR up to the television.
- 2 If it has not been automatically selected, select the SCART socket on the television. (refer to TV Owner's Manual)
- 3 To cancel press the SAT.MONI. button again.

➤ If you press MENU on the remote control the Satellite Monitor function will be canceled.

### Switching between the TV and VCR Modes

The TV/VIDEO button allows you to record one channel with the VCR while you watch another channel on the TV.

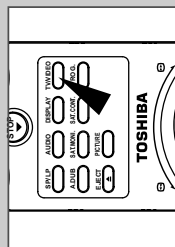
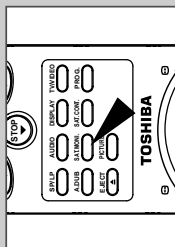
When the VIDEO indicator is... Your television...

On  
The television receives the picture from the VCR and you can select channels with the CHANNEL (↵ or ↘) buttons on the VCR or CH/TRK (↵ or ↘) on the remote control.

Off (or the VCR is turned off)  
The television receives the picture from your home aerial or cable television system as it did before you connected the VCR.

You can then use the programme (↵ or ↘) buttons on your television to select the channels.

To switch the VCR indicator on and off, simply press the TV/VIDEO button.

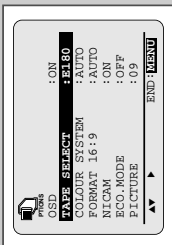
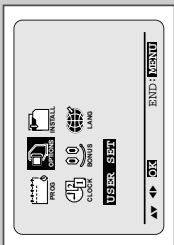


25

### Selecting the Cassette Type

If you wish to use the tape counter to display the time remaining on a cassette, you must indicate the type of cassette inserted.

- 1 Press MENU on the remote control.  
Result: The programming menu is displayed.
- 2 Press the corresponding ↵, ↘ or ↙, ↗ buttons to select the USER SET option.
- 3 Press the OK button to select this option.
- 4 Press the corresponding ↵ or ↘ buttons, until the TAPE SELECT option is selected.
- 5 Press the ↵ or ↘ buttons as many times as required, until the correct cassette length is displayed.  
↵ E180 → E240  
↘ E300 → E260
- 6 Press MENU twice to exit the menu.



### Selecting the Recording Speed

You can record a cassette at two different speeds:

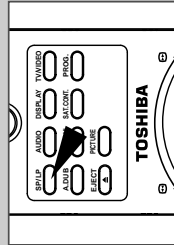
- ◆ SP (Standard Play)
  - ◆ LP (Long Play)
- In Long Play modes:
- ◆ Each cassette lasts twice as long
  - ◆ The recording is of a slightly lower quality

To record a cassette... Press the SP/LP button on the remote control, until...

In standard play mode SP is displayed.

In long play mode LP is displayed.

Type	Recording Time (in SP)
E-180	180 mins. or 3 hours
E-240	240 mins. or 4 hours
E-260	260 mins. or 4 hours and 20 mins.
E-300	300 mins. or 5 hours

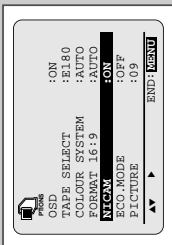
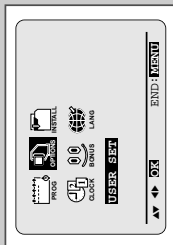


26

## NICAM

NICAM programmes are divided into 3 types, NICAM Stereo, NICAM Mono and Bilingual (transmission in another language). NICAM programmes are always accompanied by a standard mono sound broadcast and you can select the desired sound. Please refer to page 38.

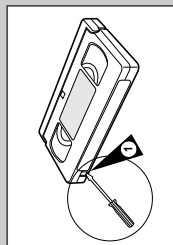
- 1 Press MENU on the remote control.  
**Result:** The programming menu is displayed.
- 2 Press the corresponding ▲, ▼ or ◀, ▶ buttons to select the **USER SET** option.  
**Result:** The **USER SET** menu is displayed.
- 3 Press the OK button to select this option.  
**Result:** The corresponding ▲ or ▼ buttons, until the **NICAM** option is selected.
- 4 Press the corresponding ▲ or ▼ buttons, until the **NICAM** option is selected.
- 5 **To...**  
Mono mode  
OFF is displayed.  
OFF: Only set at this position to record the standard mono sound during a NICAM broadcast if the stereo sound is distorted due to inferior reception conditions.  
NICAM mode  
ON is displayed.  
ON: Normally set at this position.
- 6 On completion, press MENU twice to exit the menu.



## Protecting a Recorded Cassette

Video cassettes have a safety tab to prevent accidental erasure. When this tab has been removed, you cannot record on the tape.

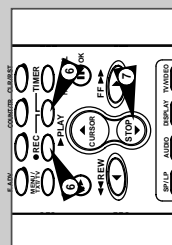
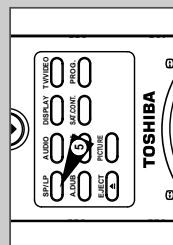
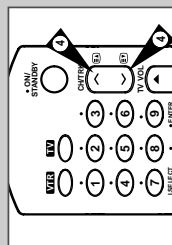
- 1 If you wish to protect a cassette, break off the tab using a small screwdriver.
- 2 To re-record over a protected cassette (safety tab broken), cover the hole with adhesive tape.



## Recording a Programme Immediately

Before recording a programme, you must have preset the corresponding station (unless you are recording via an external video source). If you have not done so, refer to pages 17 and 18.

- 1 Switch on the television.
- 2 To monitor the programme being recorded, select the television channel reserved for use with your VCR (or the AV input if used).
- 3 Insert the cassette on which the programme is to be recorded, with the window visible and the safety tab intact or the opening covered with adhesive tape.  
**Result:** The VCR is switched on automatically.
- 4 Select:  
♦ The station to be recorded using the CH/TRK (▲ or ▼) buttons  
or  
♦ The AV1, AV2 or AUX source using the ISELECT button for a satellite tuner or external video source  
**Result:** The station number is displayed and the programme can be seen on the television.
- 5 Select the recording speed (SP/LP) by pressing the SP/LP button as many times as required (see page 26).
- 6 Press two REC buttons on the remote control or REC button on the front of the VCR.  
**Result:** The record indicator appears on the television and VCR display. An index is recorded on the tape (see page 40).
- 7 To stop recording, press STOP (■) once.



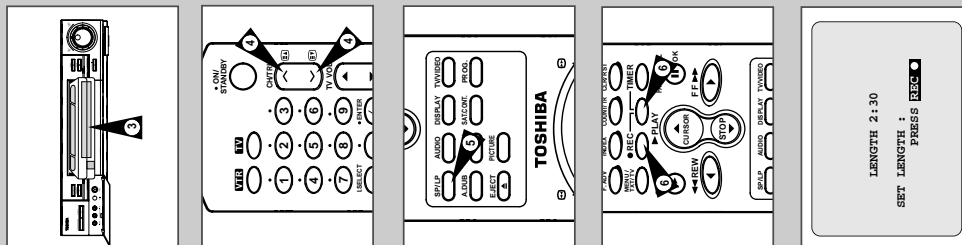
- ♦ If the cassette is ejected when you start recording, check that the safety tab is intact or the opening is covered with adhesive tape.
- ♦ If you reach the end of the tape while recording, the cassette rewinds automatically.



## Recording a Programme with Automatic Stop

This function enables you to record up to nine hours of programmes. (LP)  
Your VCR stops automatically after the requested length of time.

- 1 Switch on the television.
- 2 To monitor the programme being recorded, select the television channel reserved for use with your VCR (or the AV input if used).
- 3 Insert the cassette on which the programme is to be recorded, with the window visible and the safety tab intact or the opening covered with adhesive tape.  
**Result:** The VCR is switched on automatically.
- 4 Select:
  - ◆ The station to be recorded using the CH/TRK (▲ or ▼) buttons or
  - ◆ The AV1, AV2 or AUX source using the I.SELECT button for a satellite tuner or external video source**Result:** The channel number is displayed and the programme can be seen on the television.
- 5 Select the recording speed (SP/LP) by pressing the SP/LP button as many times as required (see page 26).
- 6 Press two REC buttons on the remote control or REC button on the front of the VCR.  
**Result:** The record indicator appears on the television screen and VCR display. An index is recorded on the tape (see page 40).
- 7 Press the REC button several times to increase the recording time in:
  - ◆ 30-minute intervals up to four hours
  - ◆ 1-hour intervals up to nine hours (LP)**Result:** The length is displayed on the television displays. The selected programme is recorded for the length of time requested. At the end of that time, the VCR stops recording automatically.
- 8 If you wish to cancel the recording before the end, press ON/STANDBY.
  - ◆ If the end of the tape is reached while recording:
  - ◆ The recording stops
  - ◆ The VCR automatically turns off



29

## Using the ShowView Feature

Before presetting your VCR:

- ◆ Switch on both the television and your VCR
  - ◆ Check that the date/time are correct
  - ◆ Insert the cassette on which the programme is to be recorded (safety tab intact)
- Up to six programmes can be preset.

- 1 Press the PROG. button.  
**Result:** The **TIMER METHOD** is displayed.
- 2 Press the corresponding ▲ or ▼ buttons, until the **SHOWVIEW** option is selected.
- 3 Press the **SHOWVIEW** buttons.  
**Result:** A message is displayed to allow you to enter the SHOWVIEW code.  
◆ If all six programmes have been set, the message **TIMER IS FULL** is displayed. Refer to page 34 if you wish to cancel a preset recording.
- 4 Press the numeric buttons to enter the code opposite the programme that you wish to record in your television magazine.  
➤ If you wish to correct the ShowView code that you are entering:
  - ◆ Press the ◀ button until the digit to be corrected is cleared.
  - ◆ Enter the correct digit.
- 5 Press the MENU button.  
**Result:** The information concerning the programme is displayed.  
◆ When using the ShowView function for the first time with stored stations, the programme number flashes. This one time, you must enter the station number manually by pressing the ▲ or ▼ buttons. Refer to the following page if:
  - ◆ The programme number or times flash
  - ◆ you wish to modify the programme.
- 6 If the programme and times are correct, press the MENU button.
- 7 Press the two TIMER buttons to activate the timer. If you wish to turn the timer off any reason simply press the two TIMER buttons again.
- 8 Refer to page 34 if you wish to:
  - ◆ Check that your VCR has been programmed correctly
  - ◆ Cancel a preset recording



30

TM ShowView is trademark Genstar Development Corporation. The ShowView system is manufactured under license Genstar Development Corporation.

## Modifying ShowView Programming

If you wish to correct the programme displayed or modify certain elements, such as the recording speed, you can do so before you press MENU a second time to confirm.

If you wish to...	Then...
Select an input source other than tuner (AV1, AV2 or AUX)	<ul style="list-style-type: none"><li>Press the ◀ or ▶ button, until the <b>PR</b> selection flashes.</li><li>Press the ISELECT button one or more times to change the input source selection. Result : The programme number is displayed by:<ul style="list-style-type: none"><li>A1, A2 or AU for a satellite tuner or external video input (used by another VCR for example)</li></ul></li></ul> <p>➤ The input source must be selected before changing any other value.</p>
Record a programme every day (monday to sunday) at the same time.	<ul style="list-style-type: none"><li>Press the ◀ or ▶ buttons, until the <b>DAY</b> selection flashes.</li><li>Press the ▲ or ▼ buttons, until the <b>DAY</b> (daily) value is displayed.</li></ul>
Record a programme every week on the same day and at the same time	<ul style="list-style-type: none"><li>Press the ◀ or ▶ buttons, until the <b>DAY</b> selection flashes.</li><li>Press the ▲ or ▼ buttons, until the <b>W-</b> (Week) value is displayed, followed by the required day. Example : <b>W-SA</b> (Weekly saturday).</li></ul>
Extend the recording time	<ul style="list-style-type: none"><li>Press the ◀ or ▶ buttons, until the <b>STOP</b> selection flashes.</li><li>Press the ▲ or ▼ buttons to increase or decrease the stop time.</li></ul>
Select the record speed	<ul style="list-style-type: none"><li>Press the ◀ or ▶ button, until the recording speed selection flashes.</li><li>Press the ▲ or ▼ button until the correct indication is displayed :<ul style="list-style-type: none"><li><b>AUTO</b> (Auto Tape Speed Select) : see page 26.</li><li><b>SP</b> (Standard Play).</li><li><b>LP</b> (Long Play).</li></ul></li></ul>
Select VPS/PDC recording	<ul style="list-style-type: none"><li>Press the ◀ or ▶ buttons, until the <b>V/P</b> selection flashes.</li><li>Press the ▲ or ▼ buttons until the 'ON' or '-' indication is displayed.</li><li>Do not select VPS/PDC unless you are sure the programme you wish to record is broadcast with VPS/PDC. If you do set VPS/PDC ON (by selecting "ON" in the right - hand column on the screen), then you must set up the start-time EXACTLY according to the published TV schedule. Otherwise the timer recording won't take place.</li></ul>

31

## Using the TIMER Programming Feature

The **TIMER Programming** feature allows you to preset the VCR to record a programme up to one month before that programme is to be broadcast. Up to six programmes can be preset.

➤ Before presetting a recording, check that the date and time are correct.

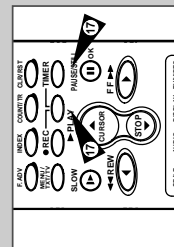
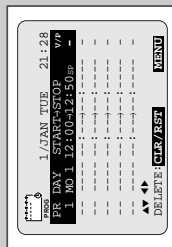
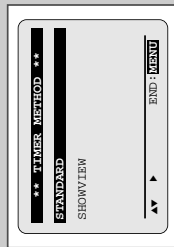
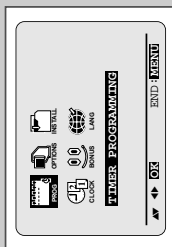
- 1 - Insert the cassette. Press the **PROG.** button.  
Press the ▲ or ▼ buttons to select the **STANDARD** option and then press the ▶ button or  
➤ Press **MENU** on the remote control.  
Result: The programming menu is displayed.  
➤ Press the OK button to select **TIMER PROGRAMMING** option.  
Result: The **TIMER PROGRAMMING** menu is displayed.
- 2 Press ▶ to select the input source.
- 3 Select the required station by pressing the ▲, ▼ buttons or ISELECT to select the AV1, AV2 or AUX input sources.
- 4 Press ▶ to select the recording day.
- 5 Select the required day by pressing the ▲ or ▼ buttons.
- 6 Press ▶ to select the recording start time.
- 7 Select the required hour value by pressing the ▲ or ▼ buttons.
- 8 Press ▶ to select the minutes.
- 9 Select the required minute value by pressing the ▲ or ▼ buttons.
- 10 Press ▶ to select the recording end time.
- 11 Select the required recording end time by pressing the ▲ or ▼ buttons, following the same procedure as when selecting the recording start time.
- 12 Press ▶ to select the recording speed (**AUTO/SP/LP**).
- 13 Press the ▲ or ▼ buttons to switch between the **AUTO, SP** (Standard Play) and to set another timer programme, press ▶ to go to next line and followed step 3 to 14 LP (Long Play) recording speeds.
- 14 Press ▶ to select VPS or PDC (V/P) recording mode.
- 15 Press the buttons to toggle between the VPS or PDC mode (marked ON) and the non-VPS/PDC mode (marked - ).
- 16 When you have finished, press the **MENU** button.
- 17 Press the two **TIMER** buttons to activate the timer.  
➤ If you wish to turn the timer off any reason simply press the two **TIMER** buttons again.  
Result: Before starting recording, the VCR compares the timer duration with the remaining time on the cassette.



Preset a programme title

- Press OK during the timer programming procedure or in the timer programming screen.
- Press the ▲ or ▼ buttons to select a character.  
To move to the next or previous character, press the ◀ or ▶ buttons respectively.
- If you wish to store the title, press OK.

32



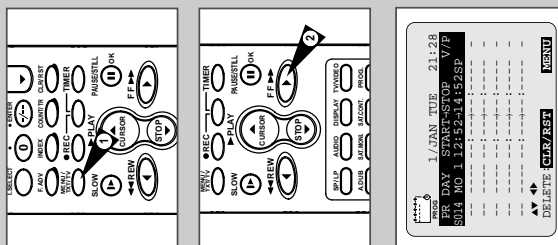
## Setting a Satellite Channel Recording

When satellite input has been set, you can program a timer recording to a satellite channel by using the **SHOWVIEW** and the **TIMER** programming function.

Before presetting a satellite channel recording, check the satellite tuning and setting. (see pages 19 and 20)

- 1 Insert the cassette and press the **MENU** button. And then press the **OK** button to select **TIMER PROGRAMMING** or press the **ShowView** code for satellite channel.
- 2 Press **▶** to select the satellite input source.
- 3 Select the satellite input by pressing the **SAT.CONT** button or **INPUT.SELECT** button.  
Result: If the satellite input has been set correctly, the PR is displayed "S - - -".
- 4 Press the numeric buttons to be selected channel.  
SAT 9: 0 0 0 9  
SAT 27: 0 2 7  
You need to press the "0" numeric button to select one or two digit satellite channel.
- 5 Refer to using the **TIMER** programming feature how to select a day, start & stop time, speed. (see page 32)

- ◆ VPS/PDC programming is not possible in conjunction with satellite programmed recording.
- ◆ In the case of some satellite receivers, the power remains off for several seconds when timer recording commences.
- ◆ With some satellite receivers, the first several seconds will not be recorded when the timer recording function is used.
- ◆ With some satellite receivers, the power goes off if the recording is stopped while timer recording is still underway.



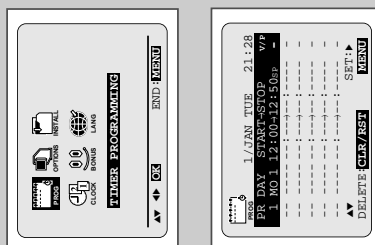
33

## Checking a Preset Recording

You can check your preset recordings:

- ◆ When you have finished presetting the VCR
- ◆ If you have forgotten which programmes will be recorded
- ◆ Before the VCR enters the timer standby mode

- 1 - Insert the cassette. Press the **PROG.** button. Press the **▲** or **▼** buttons to select the **STANDARD** option and then press the **▶** button or,  
◆ Press **MENU** on the remote control.  
Result: The programming menu is displayed.  
◆ Press the **OK** button to select **TIMER PROGRAMMING** option.  
Result: The **TIMER PROGRAMMING** menu is displayed.
- 2 Press the **▲** or **▼** buttons to select the required programme.
- 3 Press the **▲** or **▼** buttons to select and change any values as required. For more details, refer to the previous page.
- 4 On completion, press **MENU**.

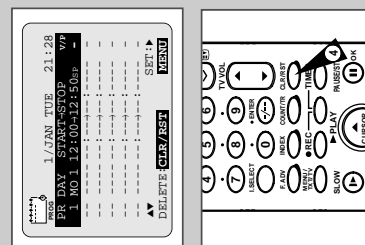


## Cancelling a Preset Recording

You can cancel any programmes that are:

- ◆ Incorrect
- ◆ No longer required

- 1 - Insert the cassette. Press the **TIMER** button. Press the **▲** or **▼** buttons to select the **STANDARD** option and then press the **▶** button or,  
◆ Press **MENU** on the remote control.  
Result: The programming menu is displayed.  
◆ Press the **OK** button to select **TIMER PROGRAMMING** option.  
Result: The **TIMER PROGRAMMING** menu is displayed.
- 2 Select the programme to be cancelled by pressing the **▲** or **▼** buttons.
- 3 Press the **CLR/RST** button to cancel the selected programme.  
Result: All the recording information is deleted and the broadcast will not be recorded.
- 4 On completion, press **MENU**.



Before starting recording, the VCR compares the timer duration with the remaining time on the cassette.

➤ Auto Tape Speed Select. The VCR's "Auto Tape Speed Select" function compares the duration of the timer recording to the actual recording time remaining on the tape loaded. If there is insufficient tape to complete a timer recording in **AUTO** mode, the VCR automatically switches to **LP** mode to record the whole programme.

34

### Playing a Cassette

This function allows you to play back any pre-recorded cassette.

- 1 Switch on both the television and your VCR.
- 2 Insert the video cassette to be played. If the safety tab on the cassette is intact, press **PLAY** (▶) .  
Otherwise, the cassette is played automatically.  
➤ When a cassette is loaded, the tape position is optimized automatically to reduce disturbance (Digital Auto Tracking).  
When playing a cassette, if the end of the tape is reached, the cassette is rewound automatically.  
NTSC tapes can be played back but cannot be recorded with this VCR.

3 To...

Stop the playback

■ (STOP).

Eject the cassette

▲ (EJECT).

### Adjusting Picture Alignment Manually

The Picture Alignment feature allows you to adjust the alignment manually to obtain the best possible picture.

When noise bars or streaks appear during playback, adjust alignment manually by pressing the CH/TRK (↵ or ↶) buttons until the picture is clear and stable.

Result:

- ◆ The tracking bar appears.
- ◆ The image is adjusted.
- ◆ The tracking bar disappears when you release the button.

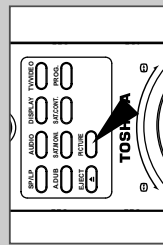
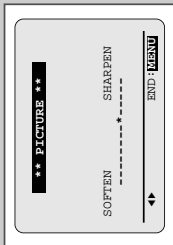
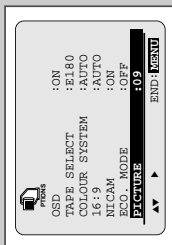
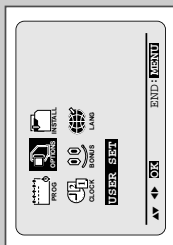
### Picture Control

The picture control feature allows you to adjust the sharpness of the image manually, according to your own preferences.

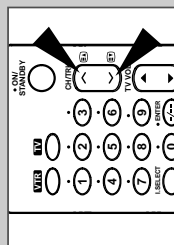
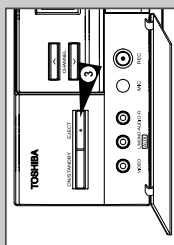
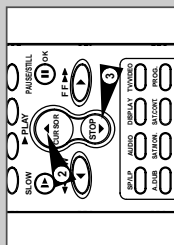
- 1 During playback, press the **MENU** button on the remote control.  
Result: The **MAIN** menu is displayed.
- 2 Press the corresponding ▲, ▼ or ◀, ▶ buttons to select the **USER SET** option.
- 3 Press the OK buttons to select this option.  
Result: This **USER SET** menu is displayed.
- 4 Press the corresponding ▲ or ▼ buttons until the **PICTURE** option is selected the **PICTURE** option.
- 5 Press the ◀ or ▶ buttons until the picture is displayed according to your preferences.



The Picture control feature allows you to adjust the sharpness of the image manually by pressing **PICTURE** button on the Remote Control.



36



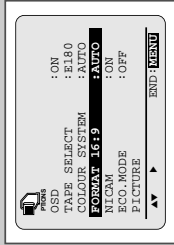
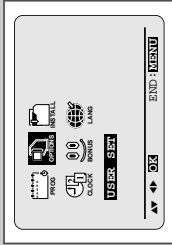
35

### Format 16:9 (WIDE SCREEN)

Your VCR can automatically read a 16:9 signal from the AV1/AV2 input or a prerecorded 16:9 tape. It can broadcast a 16:9 signal through a 21 pin scart cable.

- 1 Press MENU on the remote control.  
Result: The programming menu is displayed.
- 2 Press the corresponding **▲**, **▼** or **◀**, **▶** buttons to select the **USER SET** option.
- 3 Press the OK button to select this option.  
Result: The **USER SET** menu is displayed.
- 4 Press the corresponding **▲** or **▼** buttons, until the **FORMAT 16:9** option is selected.
- 5 Press the **▶** button to select **AUTO** → **ON** → **OFF**.  

<b>AUTO</b>	Set when you use a wide TV. The VCR detects wide TV programmes and normal TV programmes automatically when playing back and recording.
<b>ON</b>	The VCR always plays back and records in the mode compatible with 16:9 wide screen. Set if the VCR cannot detect wide TV programmes with "AUTO" set.
<b>OFF</b>	Set if you do not use a wide TV.
- 6 On completion, press MENU twice to exit the menu.



### Selecting the Colour Mode

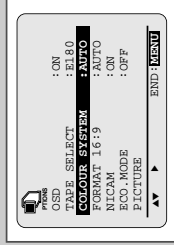
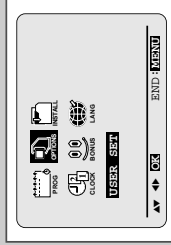
Before recording or playing back a cassette, you can select the required system standard.

Otherwise, the system automatically selects the reception standard when you select **AUTO**.

- ◆ When playing back a cassette, the standard is automatically selected by the VCR.
- ◆ When you playback an NTSC-recorded tape on this VCR make a setting on the colour system according to your TV. If your TV is a PAL system only TV, set NTPB. If your TV is Multi System TV (NTSC 4.43 compatible), set NT4.43 and you can record NT4.43.

- 1 Press MENU on the remote control.  
Result: The programming menu is displayed.
- 2 Press the corresponding **▲**, **▼** or **◀**, **▶** buttons to select the **USER SET** option.
- 3 Press the OK button to select this option.  
Result: The **USER SET** menu is displayed.
- 4 Press the corresponding **▲** or **▼** buttons, until the **COLOUR SYSTEM** option is selected.
- 5 Press the **▶** button to select **AUTO** → **PAL** → **MESECCAM** → **B/W**.  

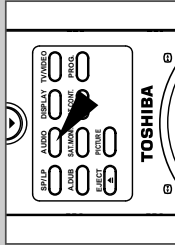
<b>AUTO</b>	When playing back a cassette, the system standard is automatically selected by the VCR.
<b>BW</b>	Black and White
- 6 On completion, press MENU twice to exit the menu.



### Selecting the Audio Output Mode

When monitoring a TV programme or playing back a Hi-Fi recorded video tape, press the **AUDIO** button to select a desired sound output. As the **AUDIO** button is pressed, the sound output and the indicator change as below:

Sound type OSD display	Stereo sound	Bilingual sound	Standard sound broadcast
	Heard in stereo. (left channel and right channel)	Channel I (MAIN) heard from the left speaker, channel II (SUB) heard from the right speaker.	Heard in monaural.
	Left channel heard from both the left and right speakers.	Channel I (MAIN) heard from both the left and the right speakers.	Heard in monaural.
	Right channel heard from both the left and right speakers.	Channel II (SUB) heard from both the left and the right speakers.	Heard in monaural.
	Sound mixed the left and right channels, and the normal audio track.		
	Heard in monaural.	Channel I (MAIN) heard from both the left and the right speakers.	Heard in monaural.



Playing a Cassette in Slow Motion

You can play a cassette in slow motion.

- 1 Press:
- ◆ **PLAY** (▶) to start playing the cassette
  - ◆ **SLOW** (◀▶) and release the **SLOW** (▶▶) button on the remote control. If you press the **SLOW** (▶▶) button twice, the playback will slow down to 1/12 th of normal speed.
  - ◆ To return to the normal speed, press the **PLAY** (▶) button.
- 2 When playing back in slow motion, picture interference may occur. Press the **CH/TRK** (↵ or ∨) buttons to minimize this effect.

When you have been using the Slow Motion function for more than about five minutes, the VCR will automatically play to protect the:

- ◆ Cassette
- ◆ Video heads

Playing a Sequence Frame by Frame

You can:

- ◆ **Stop the cassette at a given frame (Image)**
  - ◆ **Advance one frame at a time**
- No sound is heard when playing back frame by frame.

- 1 Press:
- ◆ **PLAY** (▶) to start playing the cassette
  - ◆ **PAUSE/STILL** (II) to stop the tape at a given frame
  - ◆ **F.ADV** to advance frame by frame
- 2 To return to normal playback, press **PAUSE/STILL** (II).

When you have been using the Frame-by-Frame function for more than about five minutes, the VCR will automatically play to protect the cassette and video heads.

Vertical stability: When playing back frame by frame, interference may be seen on the screen. Press the **CH/TRK** (↵ or ∨) buttons to minimize this effect.

Picture Search, Fast Forward/Rewind

Picture Search enables you to Fast Forward or Rewind and look for a particular part of a tape.

- 1 Press **PLAY**, the VCR will enter normal play mode. While in play, press and release the **FF** (or **REW**) button. The VCR will search at 5 times the normal playback speed.
- 2 To return to normal playback mode, press the **PLAY** (▶) button.
- 3 If you press and **HOLD** down the **FF** (or **REW**) button the VCR will search at 9 times the normal speed. Releasing the **FF** (▶) button will return the VCR to search at 5 times the normal speed. To return to normal playback mode, press the **PLAY** (▶) button.
- 4 Whilst in Picture Search mode, if you press the **FF** (▶) button again, the VCR will enter normal Fast Forward mode.
- 5 Likewise, whilst in Picture Search **REW** mode, if you press the **REW** (◀) button again, the VCR will enter normal Rewind mode.
- 6 If when Rewinding (**REW**) or Fast Forwarding (**FF**), you press the **REW** (or **FF**) button, the VCR will enter the Picture Search mode.

Searching for a Specific Sequence

Each time you record a cassette on this VCR, an "index" is automatically marked on the tape when recording starts.

The Search function allows you to fast forward or rewind to a specific index and start playback from that point. Depending on the direction selected, the indexes are numbered as follows:

etc.	Prev Seq.	Seq. being played	Next Seq.	etc.
2	1	1	2	

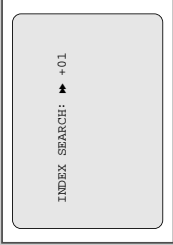
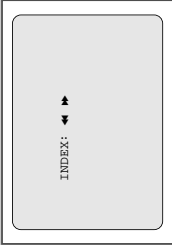
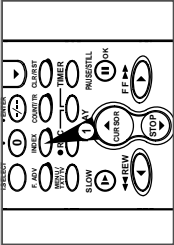
This VCR uses a standard indexing system (VSS). As a result, it will recognize any indexes marked by other VCRs using the same system and vice versa.

INTRO SCAN

- 1 To search for a specific index, press **INDEX**.
- 2 Press the **REW** (◀) or **FF** (▶) buttons depending on the direction where your desired programme is located.
- 3 When an Index mark is found the VCR will playback the tape for 5 seconds, after which it will continue searching for the next Index mark.
- 4 If you want to watch the tape from a particular Index, simply press **PLAY**.

**Index Skip Search:**  
This feature will enable you to fast forward/rewind to a specific point on a tape: E.g. if you have recorded 3 different programmes on a tape and you have rewound the tape to the beginning, by using this feature you can go directly to the start of programme 2 simply by pressing the **INDEX** button.

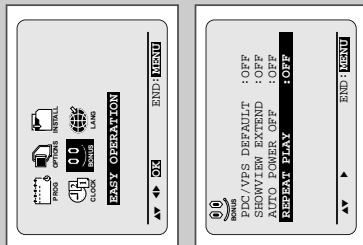
- 1 Press the **INDEX** to start the Index search.
- 2 Press the **REW** (◀) or **FF** (▶) buttons twice more. This will take you directly to the start of the desired programme is located.
- 3 These Index searches can be made forwards: (press ▶) or backwards: (press ◀).
- 4 To cancel an Index search simply press the **PLAY** or **STOP** button.



## Auto Repeat Play

You can set repeat play to repeat the tape continuously from beginning to end.

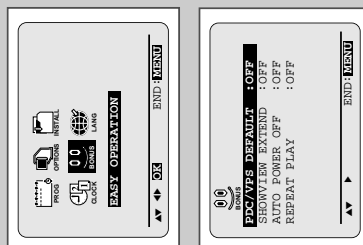
- 1 Press MENU on the remote control.  
Result: The programming menu is displayed.
- 2 Press the corresponding ▲, ▼ or ◀, ▶ buttons to select the **EASY OPERATION** option.
- 3 Press the OK button to select this option.  
Result: The **EASY OPERATION** menu is displayed.
- 4 Press the corresponding ▲ or ▼ buttons, until the **REPEAT PLAY** option is selected.
- 5 To... Press ◀ or ▶ until...  
Repeat play ON is displayed.
- 6 Do not wish to repeat play OFF is displayed.
- 6 On completion, press MENU twice to exit the menu.



## VPS/PDC Default

Programme VPS/PDC is a system of telling the VCR when a programme actually starts. Typically, when you want to record a programme you will tell the VCR to start recording, probably, five minutes before the advertised starting time of the programme and to finish ten minutes or so after the programme is due to finish. So even if the programme starts early or finishes late you will normally still get to see what you wanted to record. However when live programmes over-run the day's television schedule is changed from that advertised, you may miss the desired programme which may have been delayed or even cancelled. With VPS/PDC the VCR will wait until the signal is sent to confirm the programme is starting and the VCR will record the programme even if it is two or more hours late.

- 1 Press MENU button on the remote control.
- 2 Press the corresponding ▲, ▼ or ◀, ▶ buttons to select the **EASY OPERATION** option.
- 3 Press the OK button to select this option.  
Result: The **EASY OPERATION** menu is displayed.
- 4 Press the corresponding ▲ or ▼ buttons, until the **VPS/PDC DEFAULT** option is selected.
- 5 Press ▶ button to select ON in **VPS/PDC DEFAULT** option.
- 6 On completion, press MENU twice to exit the menu.

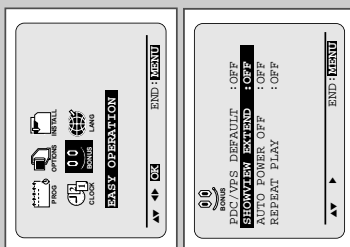


## ShowView EXTEND

To prevent delays or even-runs the VCR has a function called **ShowView EXTEND** allowing you to extend the recording time by up to 60 minutes.

➤ Only use if PDC is not available or set to OFF.

- 1 Press MENU button on the remote control.
- 2 Press the corresponding ▲, ▼ or ◀, ▶ buttons to select the **EASY OPERATION** option.
- 3 Press the OK button to select this option.  
Result: The **EASY OPERATION** menu is displayed.
- 4 Press the corresponding ▲ or ▼ buttons, until the **SHOWVIEW EXTEND** option is selected.
- 5 Press ◀ or ▶ buttons to set the ShowView EXTEND time by increments of 10 minutes..
- 6 To turn off, press ◀ or ▶ buttons repeatedly until **OFF** shows.



## Using the Tape Counter

The tape counter:

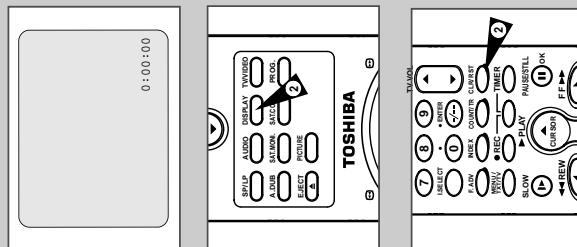
- ◆ Indicates the elapsed time in the play and record modes (hours, minutes and seconds)
  - ◆ Is reset when a cassette is inserted in the VCR
  - ◆ Allows you to find the beginning of a sequence easily
- If the remaining time is to be calculated correctly, you must indicate the type of cassette being used.

- 1 Insert a cassette in your VCR.
- 2 To set the tape counter to zero at the beginning of a sequence:
  - ◆ Press DISPLAY twice to display the counter
  - ◆ Press CLR/RST when you want to set the tape counter to zero
- 3 When you are ready,
  - ◆ Start playback or Recording.
  - ◆ Press the STOP button.
  - ◆ To fast-forward or rewind to the sequence at which the counter was set to zero, press REW (◀) or FF (▶).

➤ Some VCR information, such as the counter, can be displayed on the television screen (unless you have deactivated the OSD mode: refer to page 15).

Press DISPLAY:

- ◆ Once to display the current function, programme number, recording speed, date, time and counter
  - ◆ Twice to display the counter only
  - ◆ Three times to display the time remaining on the cassette
  - ◆ Four times to clear the display
- Press COUNT/TR:
- ◆ Once to display the counter
  - ◆ Twice to display the time remaining on the cassette



### nextViewLink Function of this VCR

If your TV has "Easy Link / nextViewLink / AV-Link" function, the VCR can automatically store stations memorized in the TV in the same channel position as those of the TV.

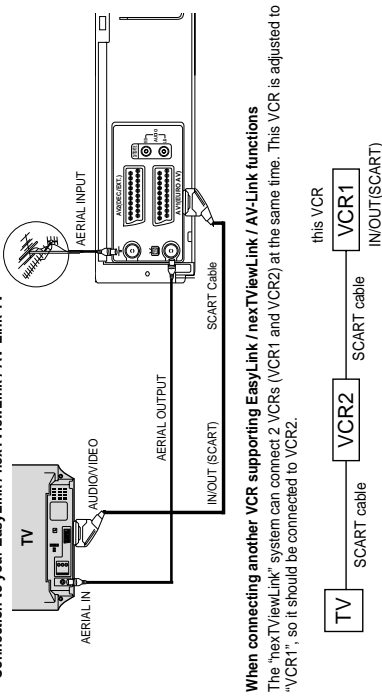
Using a SCART cable (21 pins), a mutual control is available with the TV, VCR, SAT receiver, etc.

- The VCR automatically stores all your current TV stations in the VCR in the same position order as the TV channels. ("TV CH DOWNLOAD")
- Even if the TV is in standby mode, the TV automatically turns on and displays the video picture when you start playback on the VCR.
- The VCR automatically selects the same picture as you are watching on the TV, and record it. ("TV PICTURE")
- The VCR takes in the data and turns to timer standby mode, after a program data reserved is transferred to the VCR by a TV using such as a EPG (Electronic Program Guide). In this case, the TV's and the VCR's channel position must be set to the same TV station. The position could be stored from 1 to 80. Also the VCR's clock must be set.

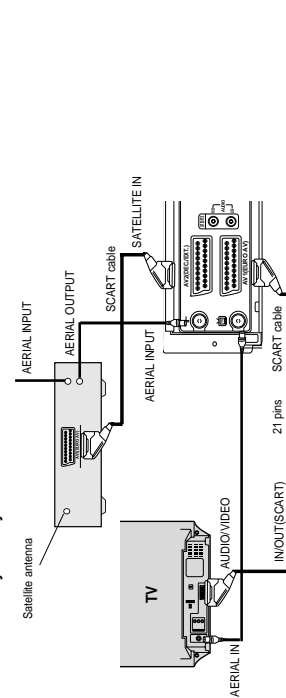
#### Connection

Connect your EasyLink / nextViewLink / AV-Link TV to the AV1 (EURO AV) socket on the rear of the VCR using the SCART cable. Refer to your TV's manual additionally.

#### - Connection to your EasyLink / nextViewLink / AV-Link TV



#### - Connection to your EasyLink / nextViewLink / AV-Link TV and a satellite receiver



### TV programme Download

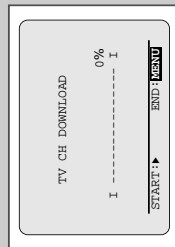
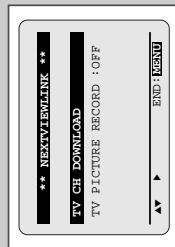
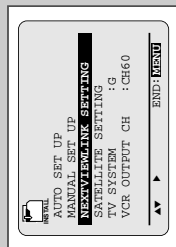
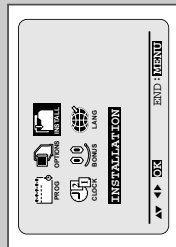
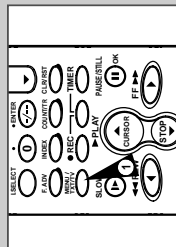
Preparation:

- ◆ Turn on the TV.
- ◆ Select the video channel or the video input mode on the TV.

- 1 Press the MENU on the remote control.  
Result: The programming menu is displayed.
- 2 Press the corresponding ▲, ▼ or ◀, ▶ buttons to select the INSTALLATION option.  
And then press the OK button to select this option.  
Result: The INSTALLATION menu is displayed.
- 3 Press the ▲ or ▼ buttons to select NEXTVIEWLINK SETTING option. And then press the ▶ button to select this option.  
Result: The NEXTVIEWLINK SETTING menu is displayed.
- 4 Press the ▲ or ▼ buttons, until the TV CH DOWNLOAD option is selected.  
And then press the ▶ button to select this option.
- 5 Press the ▶ button to start TV CH DOWNLOAD function.
- 6 When the downloading finished, then "TV CH DOWNLOAD FINISHED" is displayed.
- 7 Press the MENU button to exit.



- ◆ The available position numbers on the VCR are 1 to 80.
- ◆ When the TV's channel position is readjusted, the VCR automatically makes "TV CH DOWNLOAD".





## TV Picture Record Setting

Preparation : turn on the TV.

- 1 Press the MENU on the remote control.  
Result: The programming menu is displayed.
- 2 Press the corresponding **▲**, **▼** or **◀**, **▶** buttons to select the **INSTALLATION** option.  
And then press the OK button to select this option.  
Result: The **INSTALLATION** menu is displayed.
- 3 Press the **▲** or **▼** buttons to select **NEXTVIEWLINK SETTING** option. And then press the **▶** button to select this option.  
Result: The **NEXTVIEWLINK SETTING** menu is displayed.
- 4 Press the **▲** or **▼** buttons, until the **TV PICTURE RECORD** option is selected.
- 5 To... Press **◀** or **▶** until...  
Record the same picture as you are watching on the TV when you press REC button (●) on the your VCR remote control.  
**ON** is displayed.
- Record the selected picture on your VCR when you press REC button (●) on your VCR remote control.  
**OFF** is displayed.
- 6 Press the MENU button twice to exit.



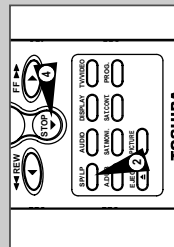
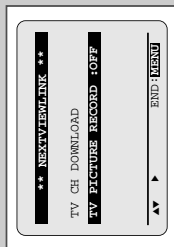
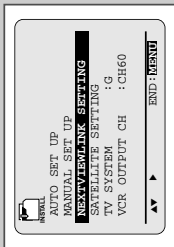
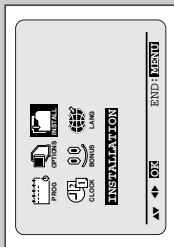
If this option is in ON mode, you press the REC button (●) on the your TV remote control, your VCR records the same picture as you are watching on the TV.

## Direct Record Procedure

- 1 Load a cassette with the safety tab attached.
- 2 Press the SP/LP button to select the recording tape speed.
- 3 Press two REC buttons to start recording.  
Result: The VCR automatically selects the same picture as you are watching on the TV and starts recording.  
Depending on the picture sources, the recording switches the method. See next page.
- 4 To stop a recording, press STOP (■) once.



- ◆ This recording is not available on the timer programme recordings.



## Pictures and TV Picture Recording

Before contacting the Toshiba after-sales service, perform the following simple checks.

Picture	The VCR records:	During recording, if you change the channel or the input mode on the TV, the recording will be:
Channel selected on the TV If you performed "TV CH DOWNLOAD" (TV stations stored on the VCR and the TV in the same position order).	VCR channel of the same number as the TV channel Ex. TV channel 1	Continued.
If you did not perform "TV CH DOWNLOAD" (TV stations not stored on the VCR and the TV in the same position order).	AV1 (output of the TV)	Stopped.
Pictures of external equipment connected to the TV	AV1 (output of the TV)	Stopped.
Channel selected on the VCR	VCR channel Ex. VCR channel 1	Continued.

### Connecting an RCA Audio/Video Input Cable

You can connect other audio/video equipment to your VCR using audio/video cables if the appropriate outputs are available on the equipment chosen.

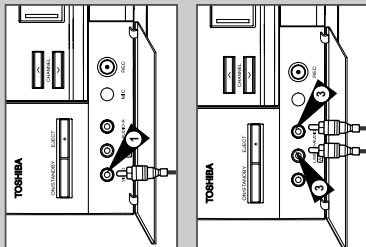
Examples: ♦ You wish to copy a video cassette with the help of a second VCR (see page 48).

♦ You wish to play back and/or copy pictures taken with a camcorder (see page 48).

♦ Make sure that both the television and the VCR are switched off before connecting the cables.



- 1 Connect one end of the RCA audio/video cable into the VIDEO socket on the front of the VCR.
- 2 Plug the other end of the audio/video cable into the appropriate output connector on the other system (VCR or camcorder).
- 3 Connect one end of the RCA audio cable into the AUDIO sockets on the front of the VCR.  
➤ Take care to respect the colour coding of the left and right channels.
- 4 Plug the other end of the audio cable into the appropriate output connectors on the other system (VCR, camcorder).



### Using the Assemble Edit Function

This function allows you to start a new recording at a specific position on the cassette while maintaining a very smooth scene change.

- 1 Insert the cassette to be edited in your VCR.
- 2 Press the PLAY (▶) button to start playback.
- 3 When you reach the position from which you wish to start the new recording, press the PAUSE/STILL (II) button.
- 4 Press the F-ADV button as often as necessary to advance frame by frame, until the exact recording position is located.
- 5 While the VCR is in still mode, press the two REC buttons to activate the Assemble Edit function.
- 6 Select the source from which you wish to record by pressing:
  - ♦ The CH/TRK (← or →) buttons for television channels
  - ♦ The ISELECT button for the AV1, AV2 or AUX input sources
- 7 Press the PAUSE/STILL (II) button to start recording.
- 8 When you have finished recording, press STOP (■).



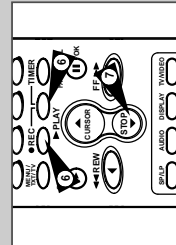
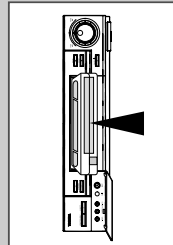
- ♦ A smooth edited scene will only be achieved if there are of the same video system.
- ♦ There might be some noise in the picture at the end of recording.

### Recording from Another VCR or Camcorder

You can copy a cassette to your VCR from another video source, such as another VCR or a camcorder.

It is an infringement of copyright laws to copy prerecorded cassettes or to re-record them in any form without the permission of the owners of the corresponding copyright.

- 1 Connect the VCR, from which the cassette is to be copied, to the appropriate SCART audio and video input connectors on the rear of your VCR.  
You can also use a RCA audio and video cable to connect the AUX input on the front of your VCR.
- 2 Insert a blank cassette in your VCR.
- 3 Insert the pre-recorded cassette in the other video source (VCR or camcorder).
- 4 Press the ISELECT button to select the appropriate input on your VCR:
  - ♦ AV1 or AV2 for the SCART input
  - ♦ AUX for the RCA input
- 5 Start playing back the cassette to be copied.
- 6 Press the two REC buttons to start recording on your VCR.
- 7 When you have finished recording, press STOP (■) on both VCRs.



## Audio Dubbing a Pre-recorded Cassette

With the Audio Dubbing function, you erase the previously recorded sound and replace it with a new soundtrack from:

- ◆ A CD player
- ◆ A microphone connected to a sound system
- ◆ A cassette player

### Restriction:

Audio dubbing is applicable only to the longitudinal audio track (normal audio).

- 1 Connect an RCA audio cable to the appropriate output on your sound system (CD/cassette player for example).
- 2 Connect the other end of the RCA audio cable to the audio input connectors (L, R) on the front of your VCR.
- 3 Insert the pre-recorded cassette on which the audio track is to be replaced, and press the **PLAY** (▶) to start playback.
- 4 Find the scene that you want to over-dub and press **PAUSE/STILL** (II) on the remote control.
- 5 Press **A.DUB**.  
Result: Your VCR is now in the Audio dubbing Pause mode.
- 6 On the sound system, locate the point on the CD or cassette at which you wish to start playback.  
Example: The track that you wish to record on the cassette.
- 7 When you are ready:
  - ◆ Start playback on the sound system
  - ◆ Press **PAUSE/STILL** (II) on the remote control.
 Result: The soundtrack is replaced on the pre-recorded cassette.

### Audio Dubbing using microphone

- 1 Plug the microphone into the MIC socket on the front of the VTR.
- 2 Insert the tape to be **OVER-DUBBED** (the tape with the new audio track to be recorder onto).
- 3 Find the scene that you want to over-dub and press **PAUSE/STILL** on the remote control.
- 4 Press the **A.DUB** (audio dub) button on the remote control. (The screen may flicker, this is normal).
- 5 Press the **PAUSE/STILL** button again to start both the playback and the Audio dub record.
- 6 Speak into the microphone to add your commentary etc.

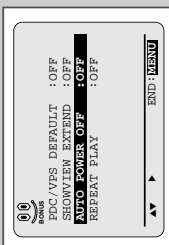
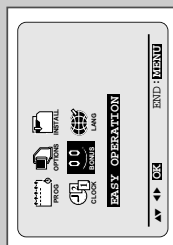


The new sound will be recorded on the normal sound track of the tape, and the original sound will remain on the Hi-Fi sound track.  
To hear the new sound and original sound mixed together, press the Audio button on the remote control until the MIX option is displayed (see page 38).

## Auto Power Off

The Auto Power Off feature automatically turns off your VCR if no signal is received and you do not press any button for the selected time.

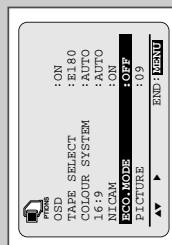
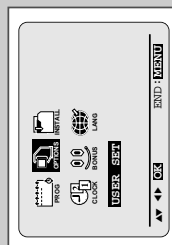
- 1 Press **MENU** on the remote control.  
Result: The programming menu is displayed.
- 2 Press the corresponding ▲, ▼ or ◀, ▶ buttons to select the **EASY OPERATION** option.
- 3 Press the **OK** button to select this option.  
Result: The **EASY OPERATION** menu is displayed.
- 4 Press the corresponding ▲ or ▼ buttons, until the **AUTO POWER OFF** option is selected.
- 5 Press the ▶ button, until you select the time of Auto Power off interval.  
→ **OFF** → **2HOUR** → **3HOUR**
- 6 On completion, press **MENU** twice to exit the menu.



## ECO Mode-Reducing Standby power consumption

Low Power Mode reduces the Standby power consumption of the VCR when in Standby mode.  
Useful, for example, when you are away from the house on holiday. It saves actually turning the VCR off.

- 1 Press **MENU** on the remote control.  
Result: The programming menu is displayed.
- 2 Press the corresponding ▲, ▼ or ◀, ▶ buttons to select the **USER SET** option.
- 3 Press the **OK** button to select this option.  
Result: The **USER SET** menu is displayed.
- 4 Press the corresponding ▲ or ▼ buttons, until the **ECO MODE** is selected.
- 5 Press the ▶ button to turn **LOW(3Watts)** mode on. Now, when the VCR is standby mode the front display panel will shut off. Even the clock disappears. By pressing the **ON/STANDBY** button again the display panel will reappear.
- 6 On completion, press **MENU** twice to exit the menu.



Using the TV Buttons on the Remote Control

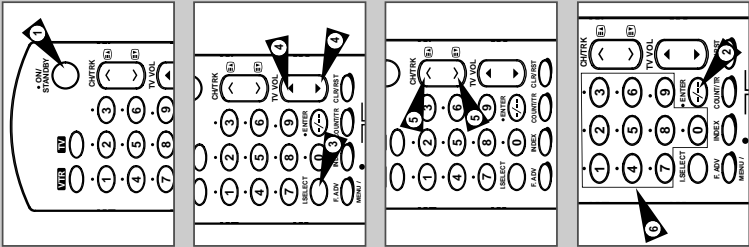
Your VCR remote control will work with Toshiba televisions and compatible brands.

To determine whether your television is compatible, follow the instructions below.

- 1 Switch your television on.
- 2 Point the remote control towards the television.
- 3 Hold down the TV button and enter the two-figure code corresponding to the brand of your television, by pressing the appropriate numeric buttons.  
Result: If your television is compatible with the remote control, it is switched off. It is now programmed to operate with the remote control (Refer to the page 52).  
➤ If several codes are indicated for your television brand, try each one in turn until you find one that works.
- ➡ When you change the batteries in the remote control, you must reprogramme the code, following the same procedure. You can then control the television using the following buttons.

Button	Function
ON/STANDBY ①	Used to switch the television on and off.
ENTER +/- ②	Used to enter a two-figure programme number. Example: For programme 12, press +/- followed by numeric buttons 1 and 2.
I.SELECT ③	Used to select an external source.
TV VOL (↵ or ∨) ④	Used to adjust the volume of the television.
CH/TRK (↵ or ∨) ⑤	Used to select the required programme.
Numbered buttons ⑥	To select TV programmes

➤ The various functions will not necessarily work on all televisions. If you encounter problems, operate the television directly.

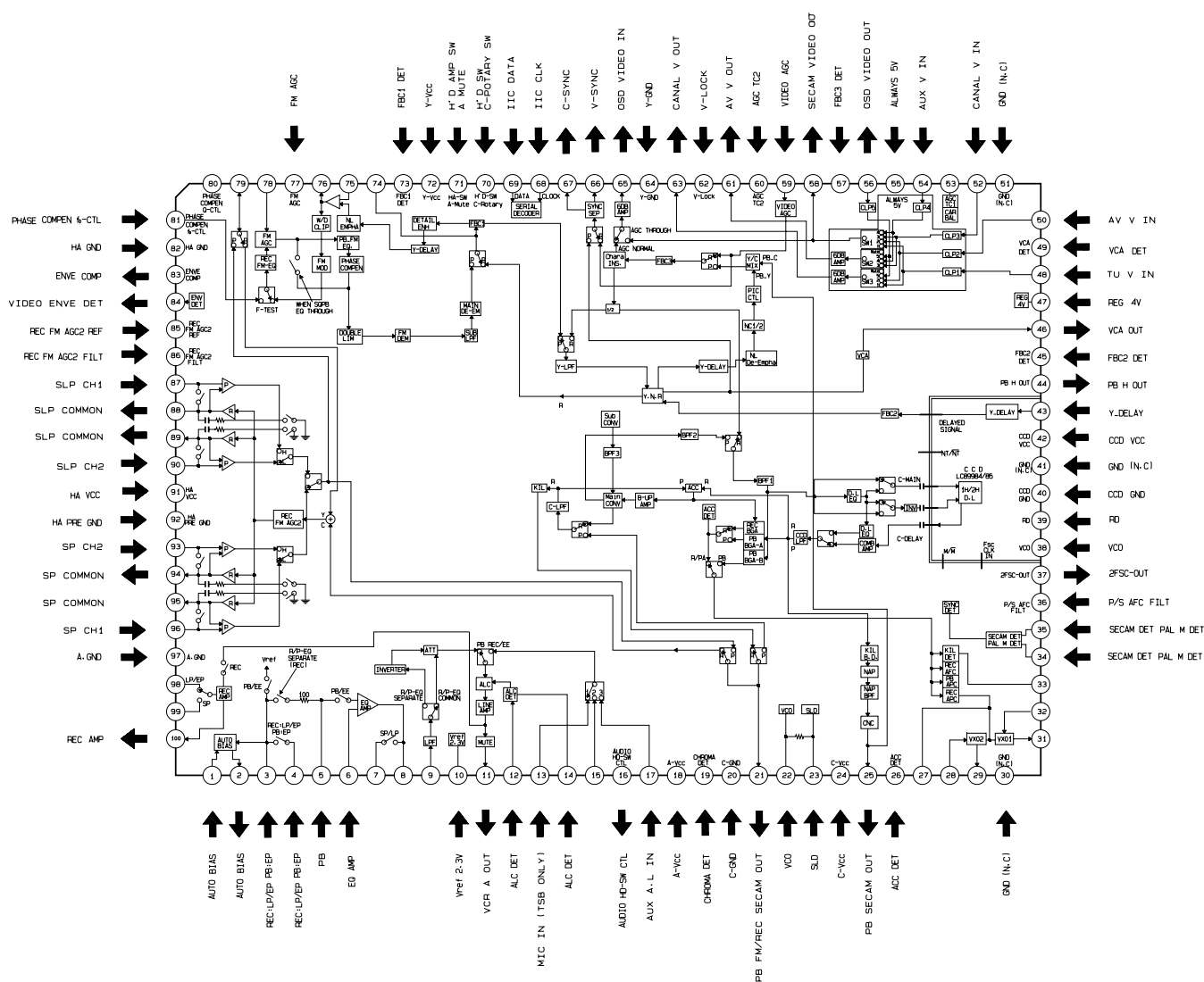


Multi brand remote controller

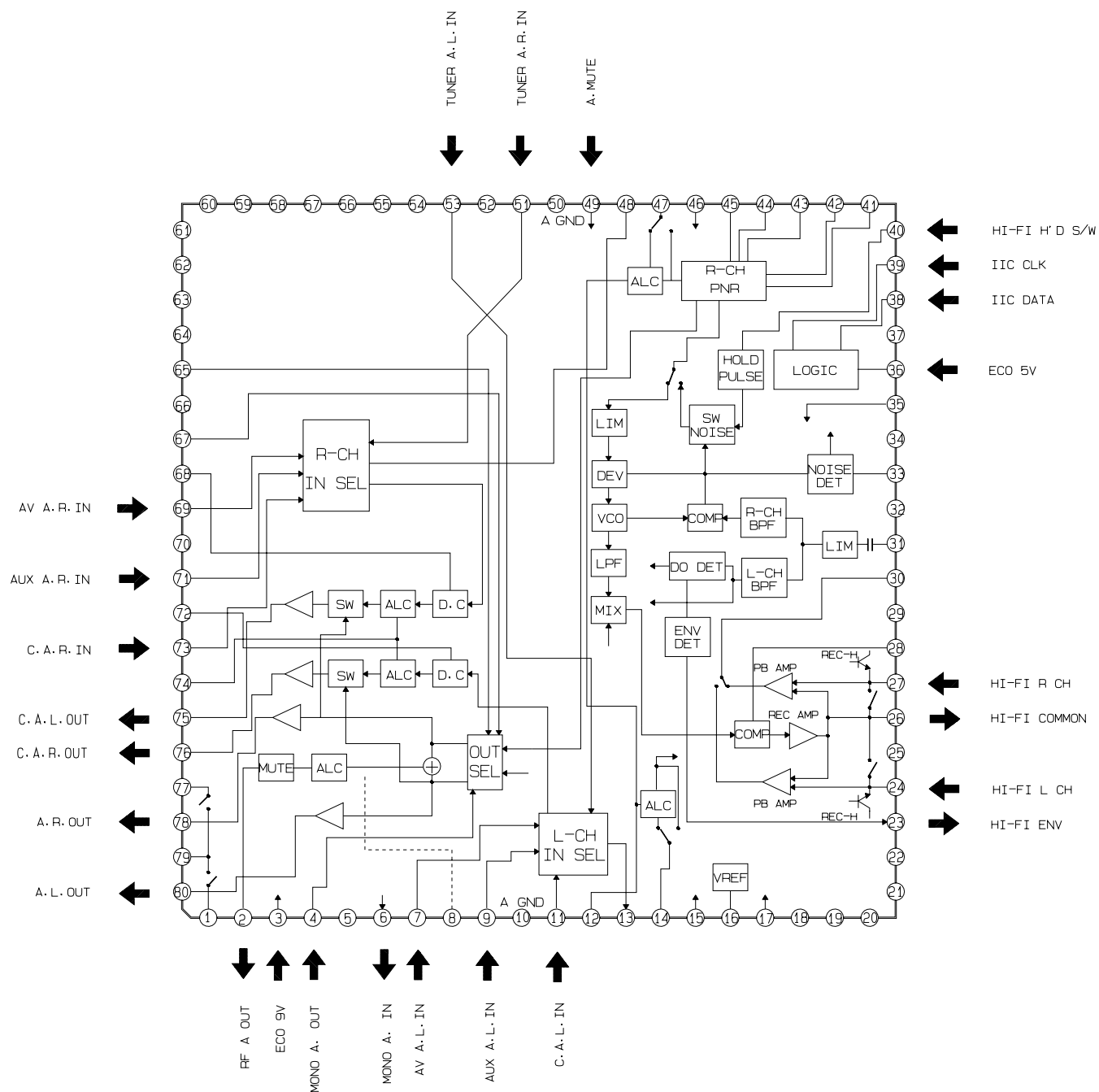
Table of Brand Codes

Brand name of your TV	Brand Code	Brand name of your TV	Brand Code
TOSHIBA	01, 09, 15, 16, 17, 18	NORMENDE	26, 27
AIWA	28	ORION	47, 48
AKAI	08	ANASONIC (NATIONAL)	03, 49
BLAUPUNKT	04, 58	PHILIPS	02, 60, 61
BRIONVEGA	20	PHONOLA	50, 62
C.G.M	19	PIONEER	11
COLONAD	13	SABA	41, 42
DUAL	33	SAMSUNG	43, 44
EMERSON	13, 14	SANYO	32
FERGUSON	24	SCHNEIDER	46
FINNER	30, 31	SELECO	21
GOLDSTAR	03, 13, 14	SHARP	05
GRUNDIG	04, 25	SIEMENS	45
HITACHI	06	SINUDYNE	53
HYPER	31	SONY	13, 14, 51, 52, 55
INNO-HIT	34	TEAC	54
IRRADIO	35	TELEFUNKEN	56
ITT	22, 23, 29	THOMSON	10
JVC	07	WHITE WESTINGHOUSE	57
LOEWE	12		
MITSUBISHI	36, 37, 38, 39		
MIVAR	19		
NEC	40		
NOKIA	22, 23, 29		

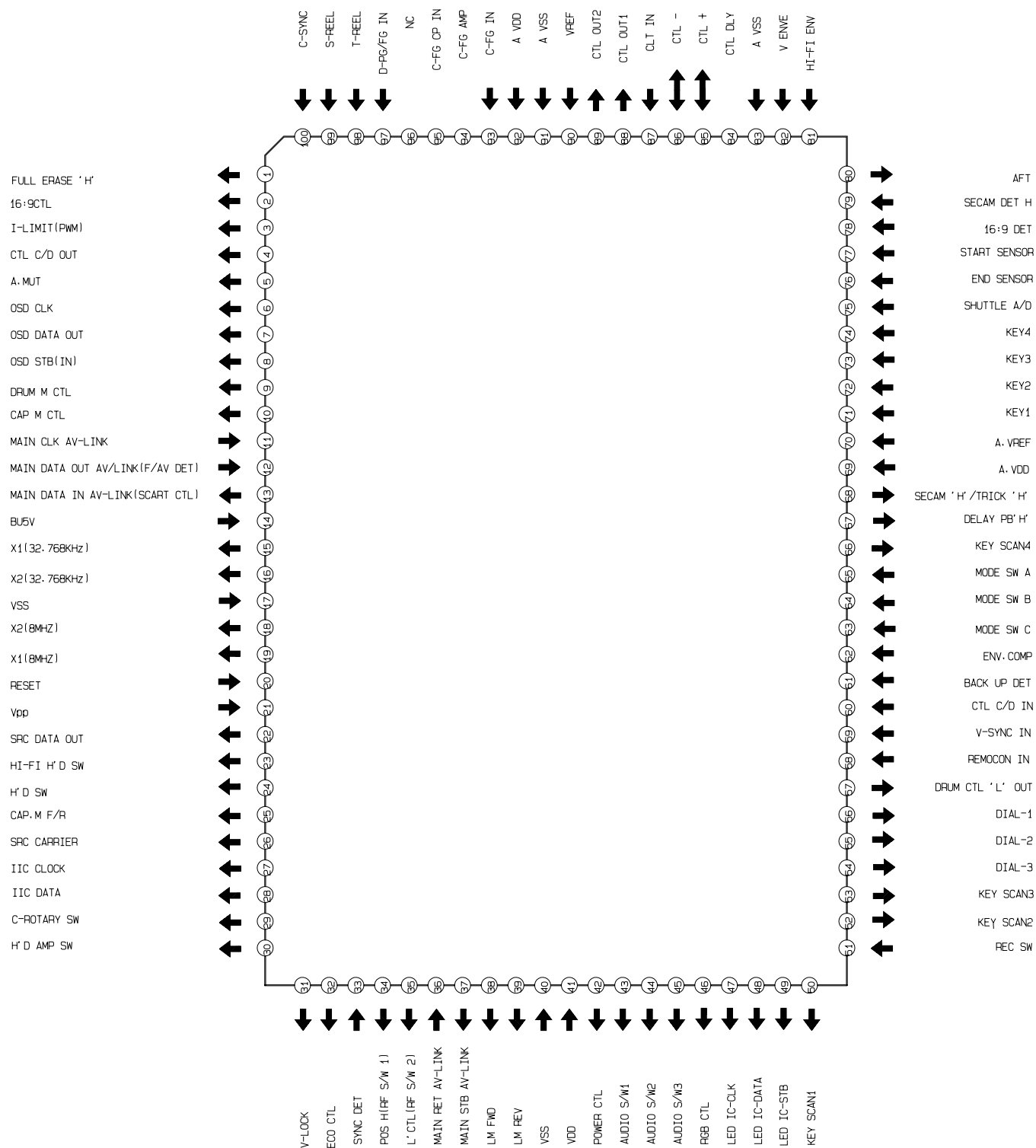
## 2-2-1 IC301 (LA71750M)



## 2-2-2 IC501 (LA72646M)



## 2-2-3 IC601 (uPD784927GF)



**MEMO**



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## 3. Product Specifications

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*Design and specifications are subject to change without notice.*

Format	VHS PAL standard
Heads	Video: 4 rotary heads Hi-Fi audio: 2 rotary heads Audio/Control: 1 stationary head Erase: 1 full track erase head
Receiving channel	VHF-I, VHF-III, UHF, Interband/Hyperband
Television system	STANDARD B/G-D/K-A2/NICAM
Luminance	FM azimuth recording
Colour system	PAL/MESECAM/NT4.43: Down converted subcarrier phase shifted direct recording
Tape speed	NTSC PB on PAL TV SP 23.39 mm/sec LP 11.69 mm/sec
Recording/playback time	SP 3 hours (E-180 Tape) LP 6 hours (E-180 Tape)
REW time	About 1 minute in REW with E-180
<b>VIDEO</b>	
Input	0.5 to 2.0 Vp-p; 75 ohm unbalanced
Output	1.0 ± 0.2 Vp-p; 75 ohm unbalanced
Signal-to-noise ratio	Better than 43 dB (SP)
Horizontal resolution	More than 240 lines
<b>AUDIO</b>	
Input	-8 dBm, 47 Kohm unbalanced
Output	-8 ± 3 dBm, 1 Kohm unbalanced
Wow and flutter (WTD)	0.4% max (SP)
Signal-to-noise ratio	68 dB min (IHF A filter)
Frequency response	20Hz - 20kHz
Power requirement	220-240V (AC 50Hz)
Power consumption	Approx. 17 watts
Operation temperature	41°F-104°F (5°C-40°C)
Operation humidity	10%-75%
Weight	3,5 Kg (net)
Dimensions (WxHxD)	430 x 94 x 409 mm

**MEMO**

## 4. Disassembly and Reassembly

### 4-1 Cabinet Assembly

#### 4-1-1 Cabinet Top Removal

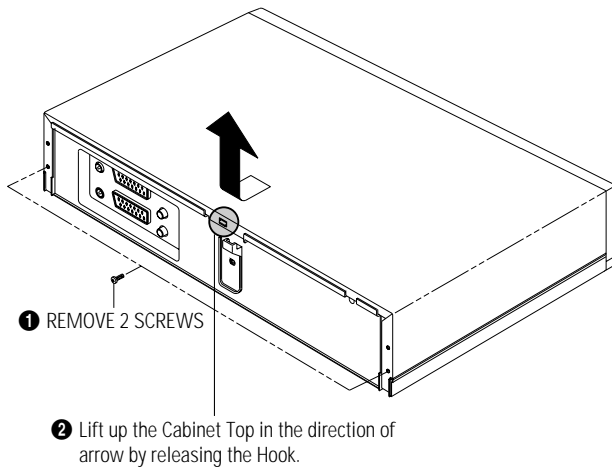


Fig. 4-1 Cabinet Top Removal

#### 4-1-2 Ass'y Front Panel Removal

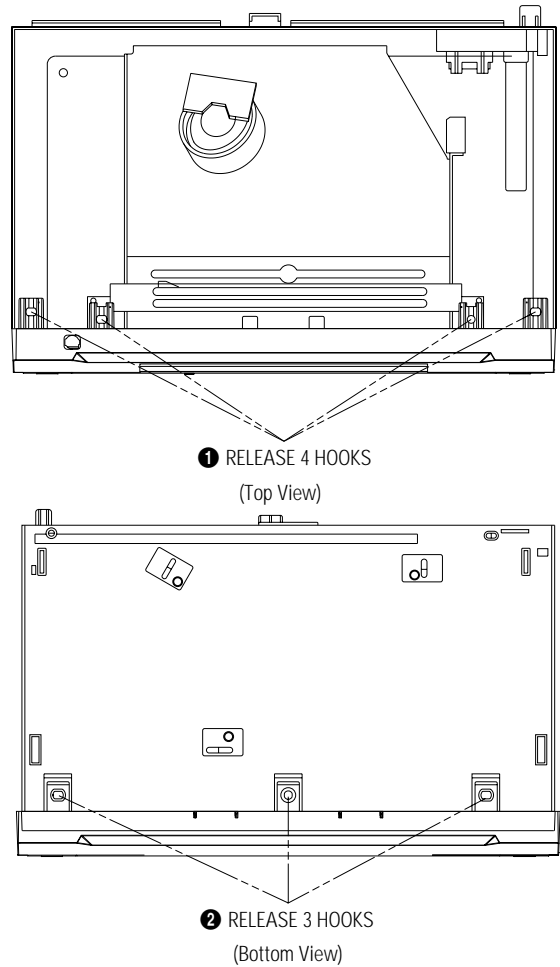


Fig. 4-2 Ass'y Front Panel Removal

#### 4-1-3 Ass'y Front A/V PCB Removal

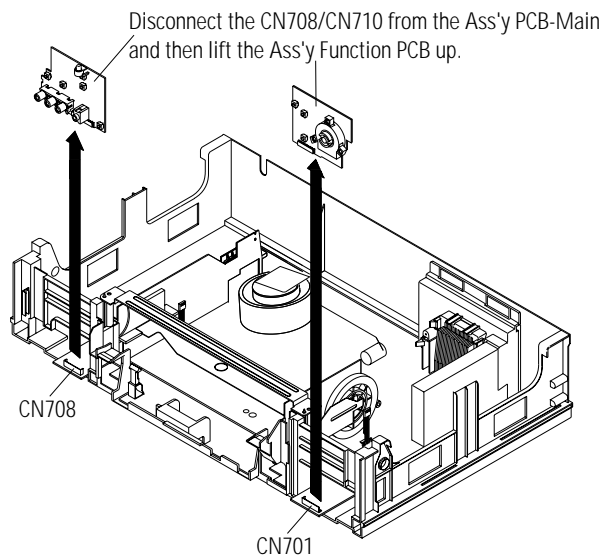


Fig. 4-3 Ass'y Front A/V PCB Removal

4-1-4 Chassis Removal

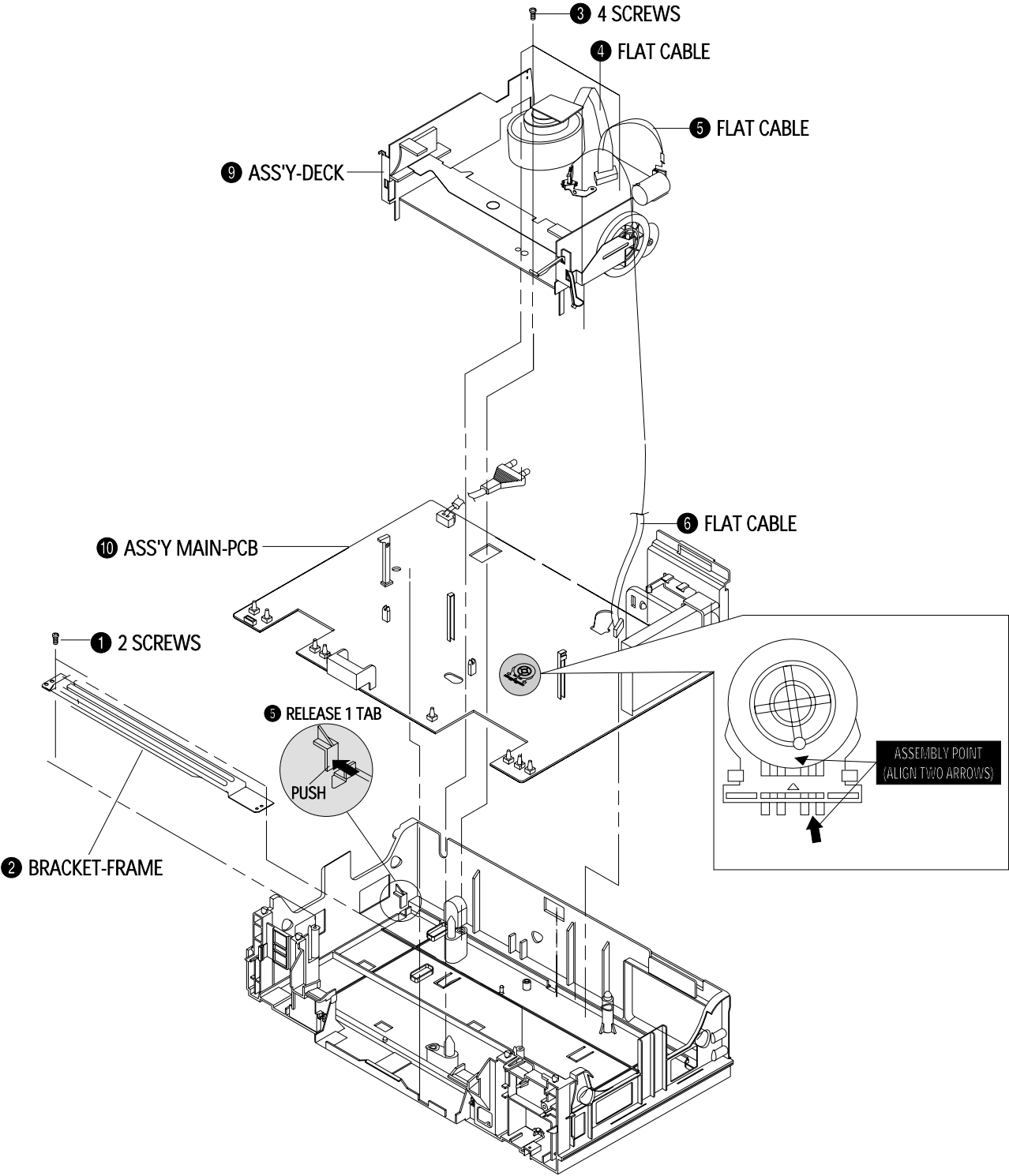


Fig. 4-4 Chassis Removal

## 4-2 Deck Parts Locations

### 4-2-1 Top View

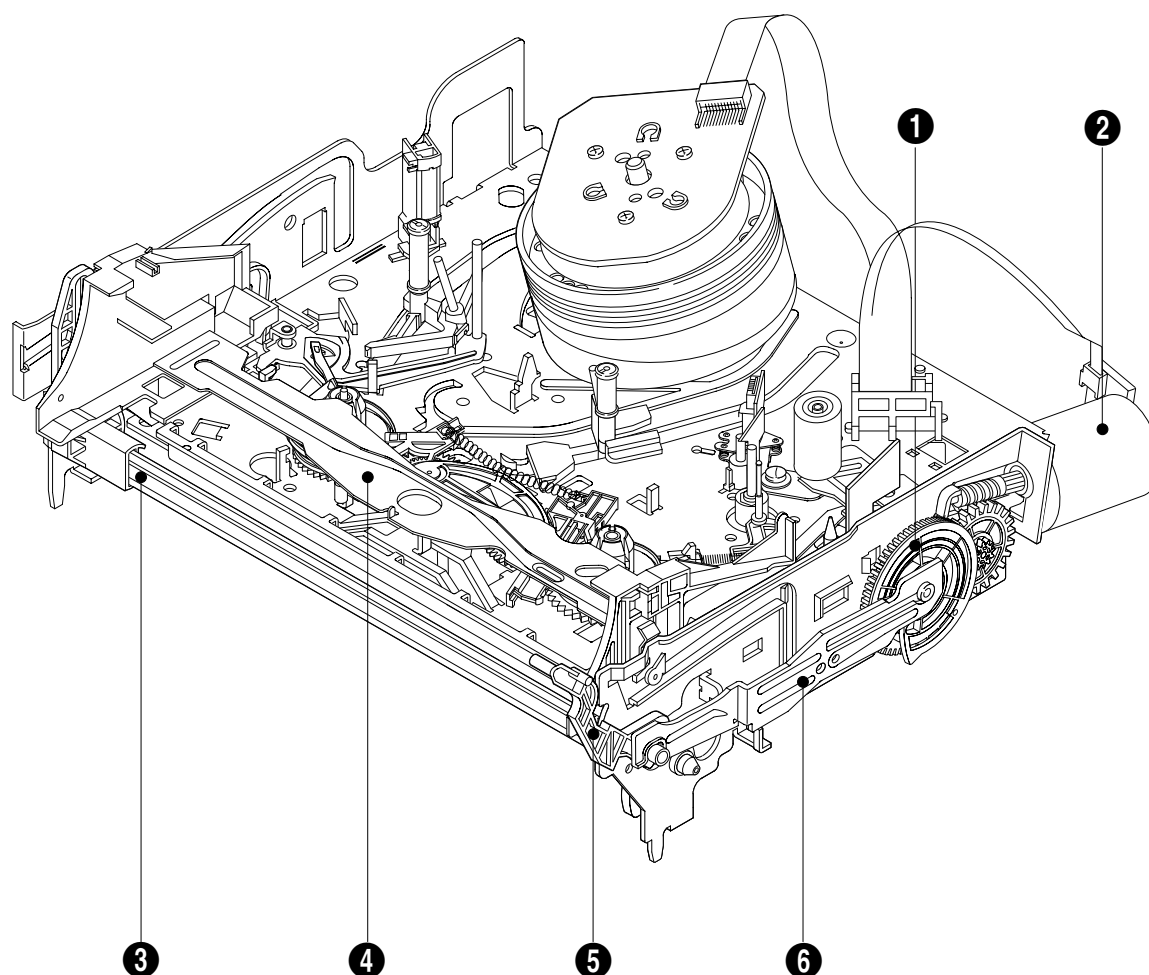


Fig. 4-5 Top parts Location-1

- ❶ GEAR FL CAM
- ❷ MOTOR LOADING ASS'Y
- ❸ LEVER FL ARM ASS'Y
- ❹ HOLDER FL CASSETTE ASS'Y
- ❺ LEVER FL DOOR
- ❻ SLIDER FL DRIVE

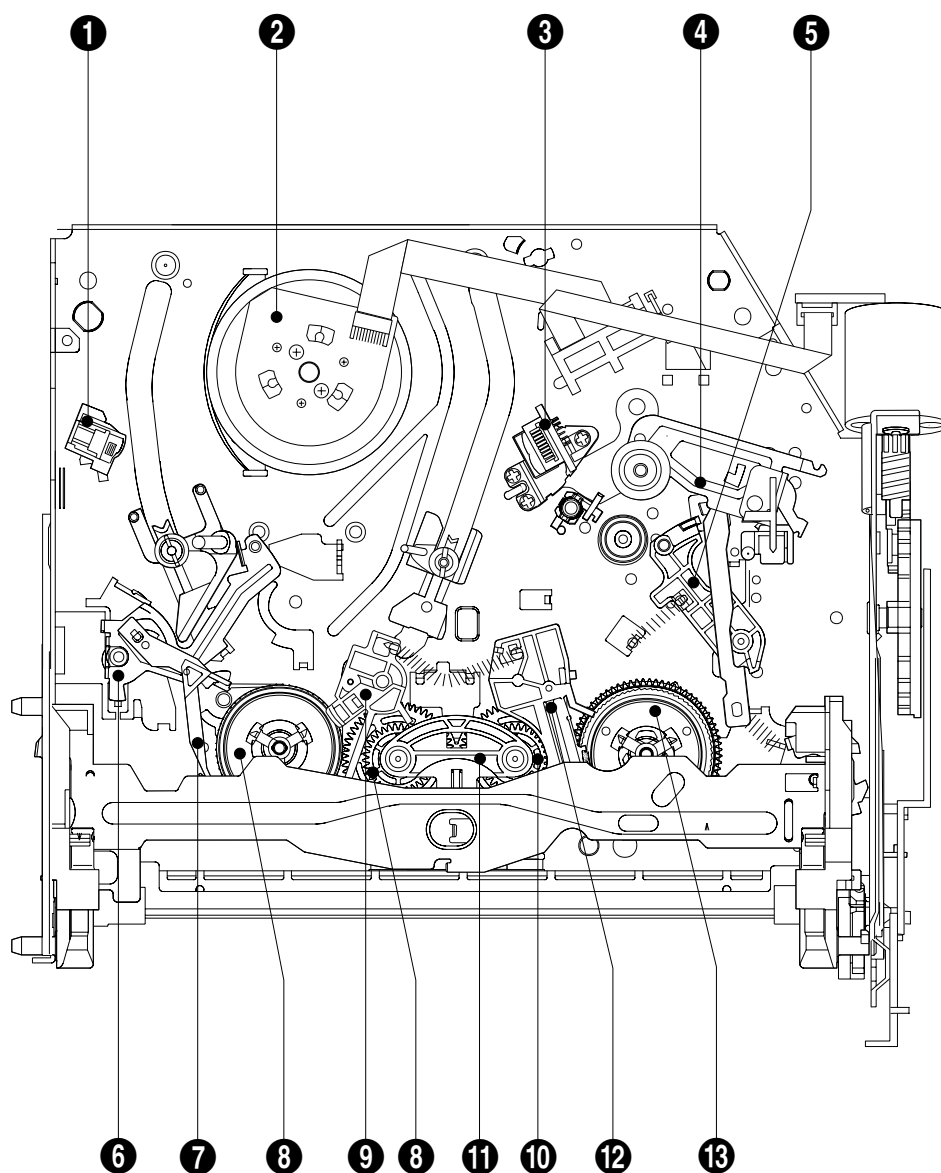


Fig. 4-6 Top Parts Location-2

- |                          |                       |
|--------------------------|-----------------------|
| ❶ FE HEAD                | ❸ DISK S REEL         |
| ❷ CYLINDER ASS'Y         | ❹ LEVER S BRAKE ASS'Y |
| ❸ ACE HEAD ASS'Y         | ❺ GEAR IDLE           |
| ❹ LEVER UNIT PINCH ASS'Y | ❻ LEVER IDLE          |
| ❺ LEVER #9 GUIDE ASS'Y   | ❼ LEVER T BRAKE ASS'Y |
| ❻ LEVER TENSION ASS'Y    | ❽ DISK T REEL         |
| ❼ BAND BRAKE ASS'Y       |                       |

## 1-1-2 Bottom View

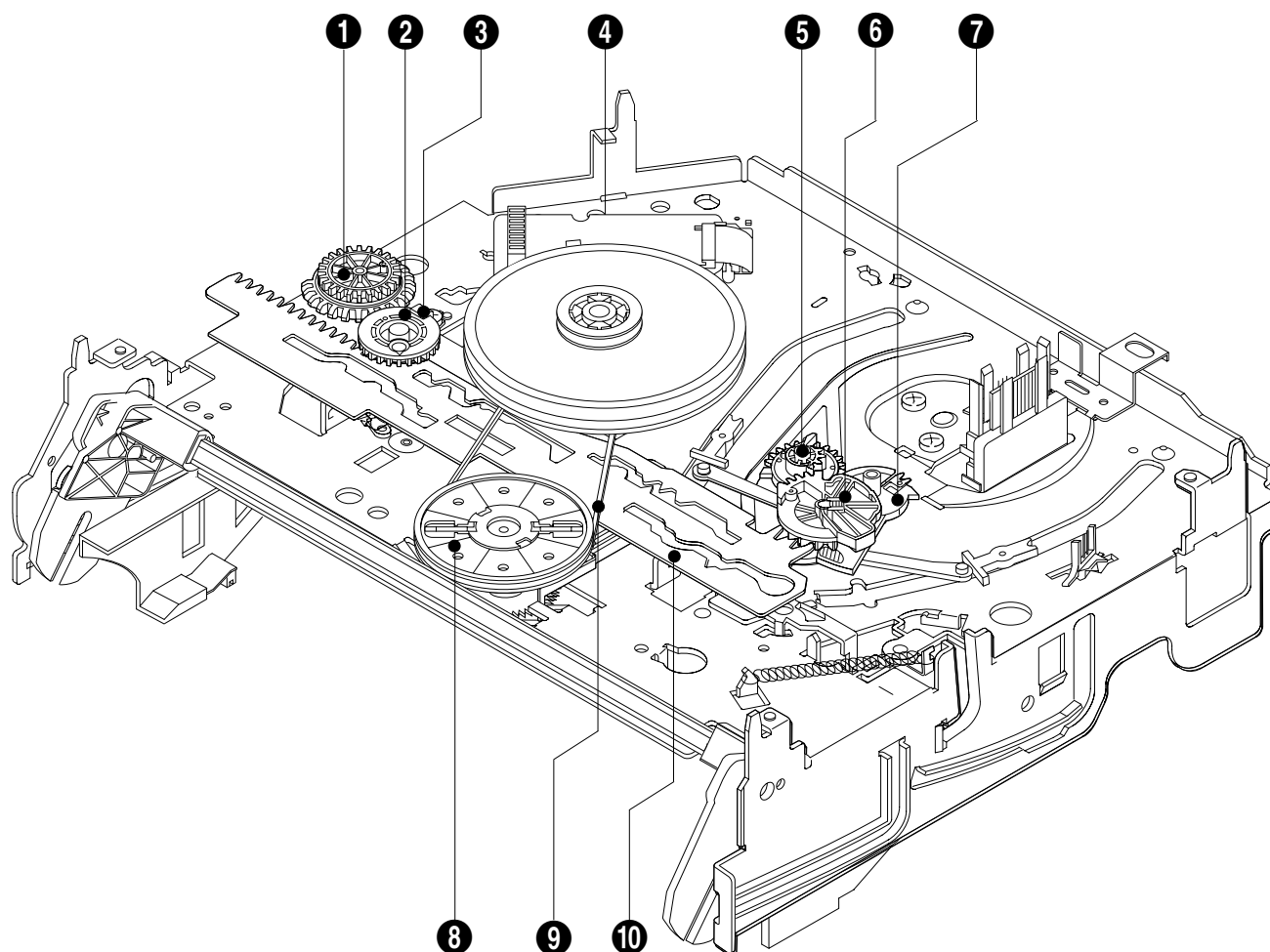


Fig. 4-7 Bottom Parts Location

- ❶ GEAR JOINT 1
- ❷ GEAR JOINT 2
- ❸ BRACKET GEAR
- ❹ MOTOR CAPSTAN ASS'Y
- ❺ LEVER T LOAD ASS'Y
- ❻ GEAR LOADING DRIVE
- ❼ LEVER S LOAD ASS'Y
- ❽ HOLDER CLUTCH ASS'Y
- ❾ BELT PULLEY
- ❿ SLIDER CAM

## 1-2 Main Deck

### 1-2-1 Holder FL Cassette Ass'y Removal

- 1) Pull the Holder FL Cassette Ass'y ❶ to the eject position.
- 2) Pull the Holder FL Cassette Ass'y ❶ as grasping the Holder FL Cassette Ass'y ❶ and Lever FL Cassette-R ❷ in the same time to release hooking from Main Base until the Boss [A] of Holder FL Cassette Ass'y ❶ is taken out from the Rail [B].
- 3) Lift the Holder FL Cassette Ass'y ❶, in this time, you have to grasp the Lever FL Cassette-R ❷ continuously until the Holder FL Cassette Ass'y ❶ is taken out completely.

**Note :** Be sure to insert Lever FL Cassette-R ❷ in the direction of "A" to prevent separation and breakage of the Lever FL Cassette-R ❷ at disassembling and reassembling.

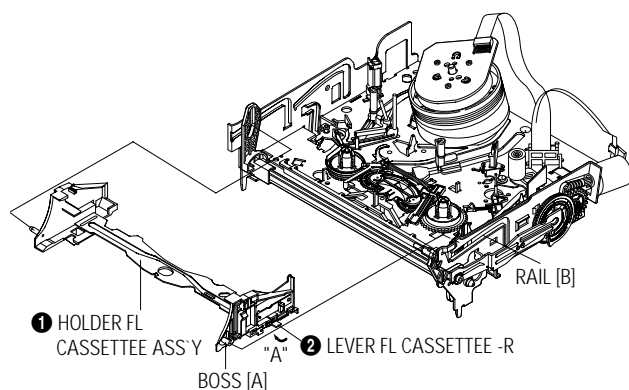


Fig. 4-8 Holder FL Cassette Ass'y Removal

### 1-2-2 Lever FL Door Removal

- 1) Release the Hook ❷ and Remove the Lever FL Door ❶ in the direction of arrow "B".

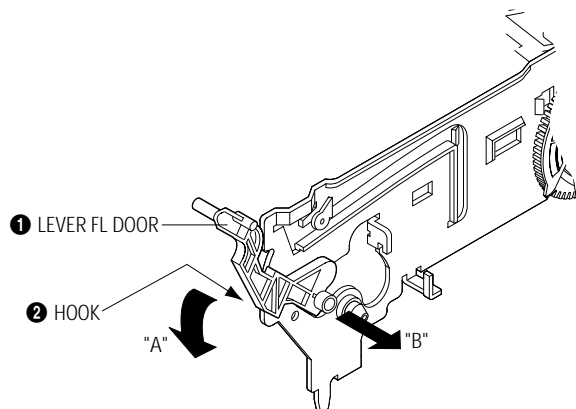


Fig. 4-9 Lever FL Door Removal



### 1-2-3 Slider FL Drive, Gear FL Cam Removal

- 1) Pull the Slider FL Drive ❶ to the front direction.
- 2) Remove the Slider FL Drive ❶ in the direction of arrow. (Refer to Fig. 4-10)
- 3) Remove the Gear FL cam ❷.

**Note :** When reinstalling be sure to reassemble Slider FL drive ❶ after you insert the Boss of Lever FL ARM-R in Groove of Slider FL drive ❶.

**Assembly :** Align the Gear FL Cam ❶ with the Gear worm wheel Post as shown drawing. (Refer to Timing point)

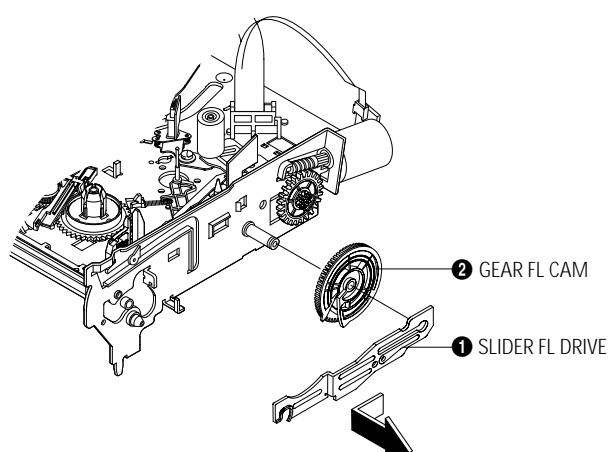


Fig. 4-10 Slider FL Drive Removal

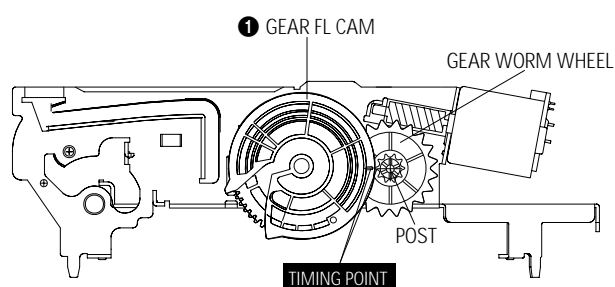


Fig. 4-11 Gear FL Cam, Gear Worm

### 1-2-4 Lever FL Arm Ass'y Removal

- 1) Push the hole "A" in the direction of arrow "B" use the pin.(about Dia. 2.5)
- 2) Pull out the Lever FL Arm Ass'y ❶ from the Boss of Main Base.
- 3) Remove the Lever FL Arm Ass'y ❶ in the direction of arrow "C".

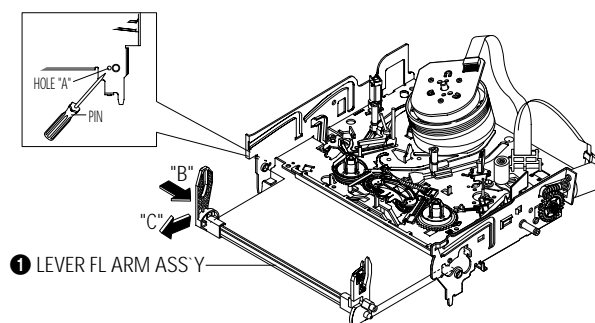


Fig. 4-12 Lever FL Arm Ass'y Removal

### 1-2-5 Gear Worm Wheel Removal

- 1) Remove the Gear Worm wheel ❶.

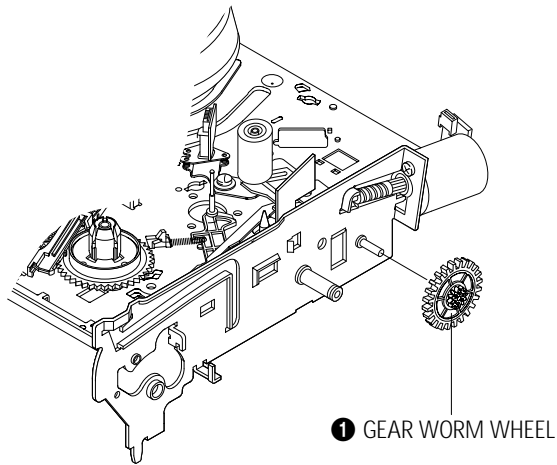


Fig. 4-13 Gear Worm Wheel Removal

### 1-2-6 Cable Flat Removal

- 1) Remove the Drum connecting part of Cable Flat ❶ from Connector Wafer ❷.
- 2) Remove the Loading Motor connecting part of Cable Flat ❶ from Connector Wafer ❸.
- 3) Rotate the Damper Capstan ❹ in the direction of arrow "A" and remove it toward "B".
- 4) Pull the Cable Flat ❶ in the direction of arrow "C" to remove.

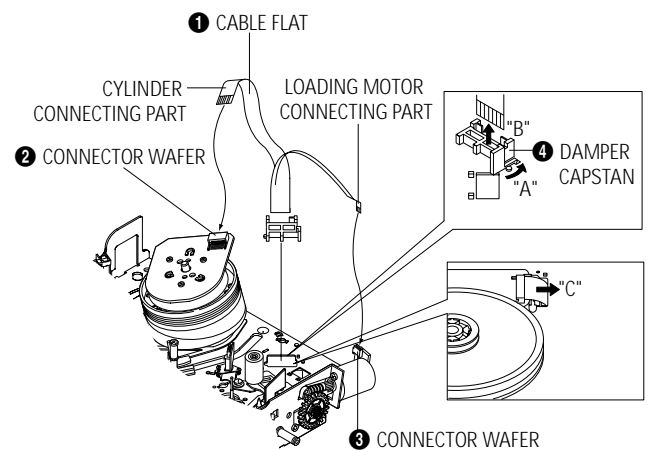


Fig. 4-14 Cable Flat Removal

### 1-2-7 Motor Loading Ass'y Removal

- 1) Remove the screw ❶.
- 2) Remove the Motor Loading Ass'y ❷.

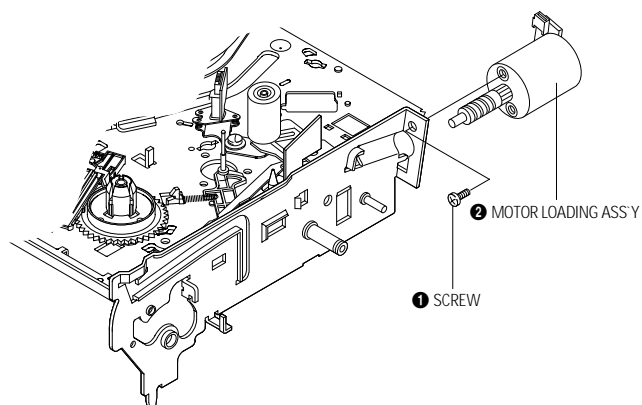


Fig. 4-15 Motor Loading Ass'y Removal

### 1-2-8 Bracket Gear, Gear Joint 2, 1 Removal

- 1) Remove the SCREW ❶.
- 2) Remove the Bracket Gear ❷.
- 3) Remove the Gear Joint 2 ❸.
- 4) Remove the Gear Joint 1 ❹.

#### Assembly :

- 1) Be sure to align dot mark of Gear Joint 1 ❶ with dot mark of Gear Joint 2 ❷ as shown Fig 4-17. (Refer to Timing point1)
- 2) Confirm the Timing Point 2 of the Gear Joint 2 ❷ and Slider Cam ❸.

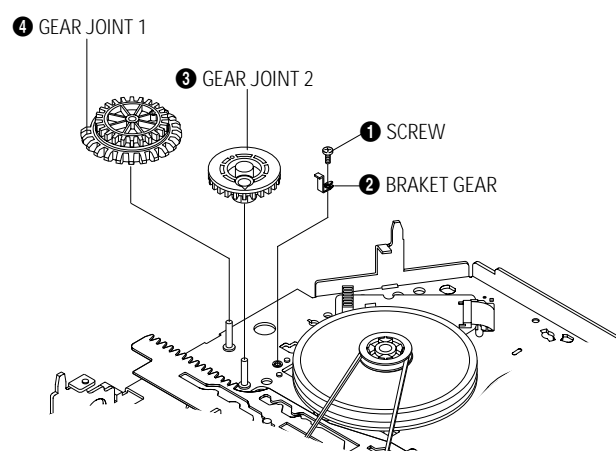


Fig. 4-16 Bracket Gear, Gear Joint 1,2 Removal

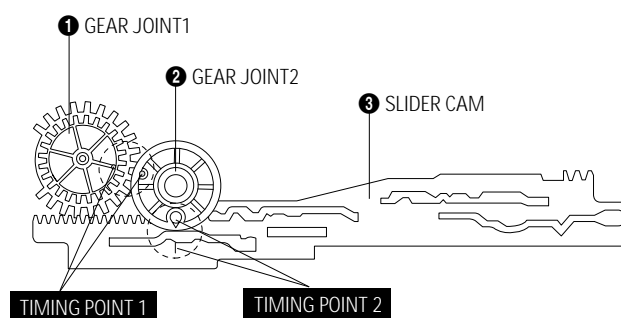


Fig. 4-17 Gear Joint 1,2 Assembly

### 1-2-9 Gear Loading Drive, Slider Cam, Lever Load S, T Ass'y Removal

- 1) Remove the Belt Pulley. (Refer to Fig. 4-35)
- 2) Remove the Gear Loading Drive **1** after releasing Hook [A] in the direction arrow as shown in detail drawing.
- 3) Remove the Slider Cam **2**.
- 4) Remove the Lever Load **3**, Link Load **5** & Lever Load **4**, Link Load **6**.

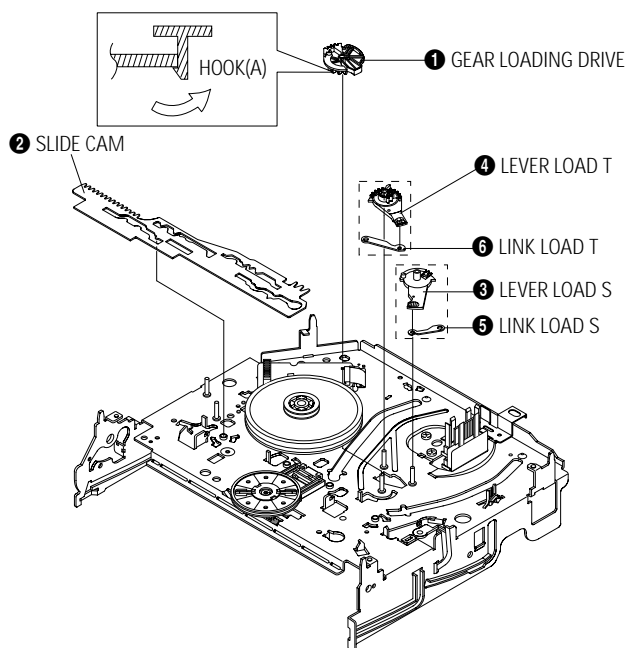


Fig. 4-18 Gear Loading Drive, Slider Cam, Lever T, S Load Ass'y Removal

### 1-2-10 Gear Loading Drive, Slider Cam, Lever Load S, T Ass'y Assembly

- 1) When reinstalling, be sure to align dot of Lever Load T Ass'y **1** with dot of Lever Load S Ass'y **2** as shown in drawing, (Refer to Timing Point 1).
- 2) Insert the Pin A,B,C,D into the Slider Cam **3** hole,
- 3) Be sure to align dot of Lever Load T **1** and dot of Gear Loading Drive **4**, (Refer to Timing Point 2).
- 4) Aline dot of Gear Loading drive **4** with mark of Slider Cam **3** as shown in drawing(Refer to Timing Point 3).

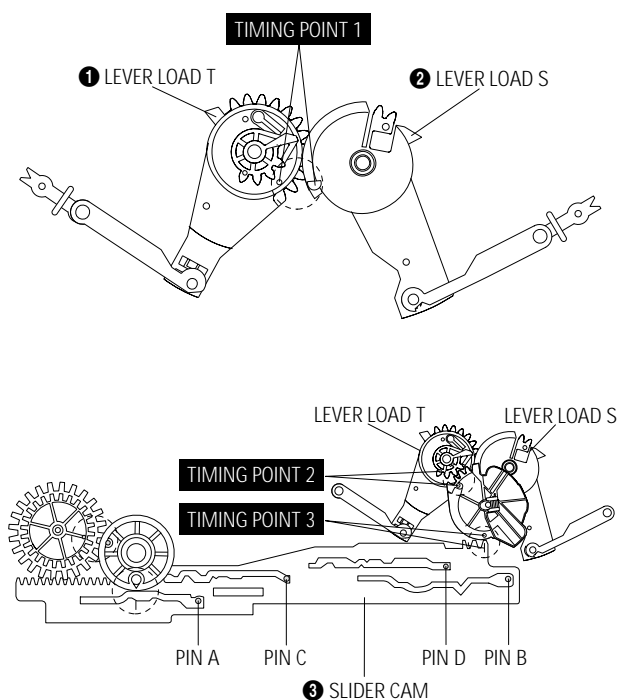


Fig. 4-19 Gear Loading Drive, Slider Cam, Lever Load S, T Ass'y Assembly

### 1-2-11 Lever Pinch Drive, Lever Tension Drive Removal

- 1) Remove the Lever Pinch Drive ❶, Lever Tension Drive ❷.

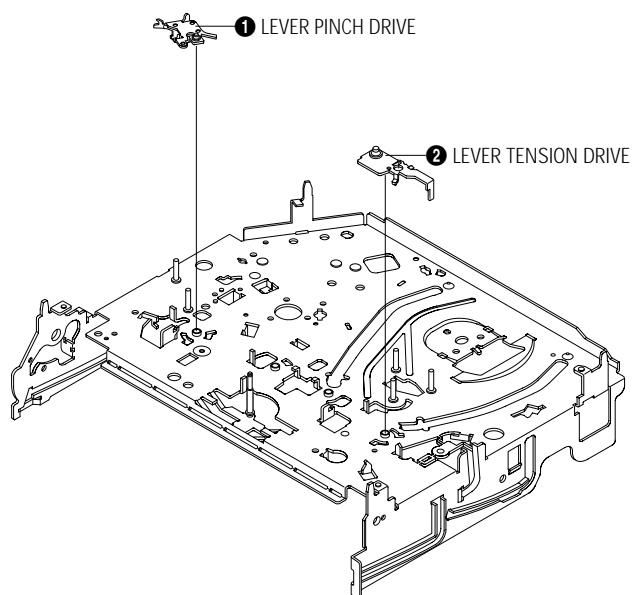


Fig. 4-20 Lever Pinch Drive,  
Lever Tension Drive Removal

### 1-2-12 Lever Tension Ass'y, Band Brake Ass'y Removal

- 1) Remove the Lever Brake S Ass'y (Refer to Fig 4-22)
- 2) Remove the Spring Tension Lever ❶.
- 3) Rotate stopper of Main Base in the direction of arrow "A".
- 4) Lift the Lever Tension Ass'y ❷ & Band brake Ass'y ❸.

#### Note :

- 1) When replacing the Lever Tension Ass'y ❷, be sure to apply Grease on the post,
- 2) Take care not to touch stain on the felt side, and not to be folder and broken Band brake Ass'y
- 3) After Lever Tension Ass'y seated, Rotate stopper of Main Base to the Mark[B].

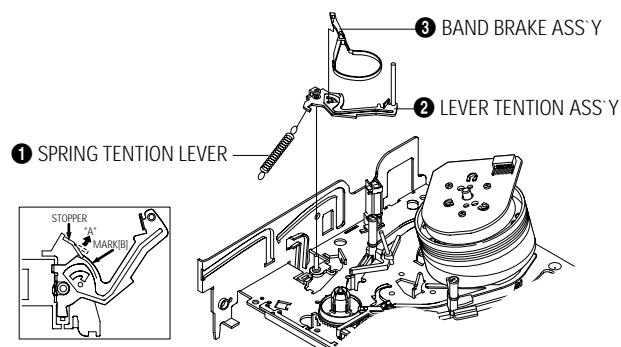


Fig. 4-21 Lever Tension Ass'y,  
Band Brake Ass'y Removal

### 1-2-13 Lever Brake S, T Ass'y Removal

- 1) Release the Hook [A] and the Hook [B], [C] in the direction of arrow as shown in Fig 4-22.
- 2) Lift the Lever S, T Brake Ass'y ①, ② with spring brake ③.

#### Assembly :

- 1) Assemble the Lever S Brake Ass'y ① on the Main Base.
- 2) Assemble the Lever T Brake Ass'y ② with spring brake ③.

**Note :** Take extreme care not to be folded and transformed Spring Brake at removing or reinstalling.

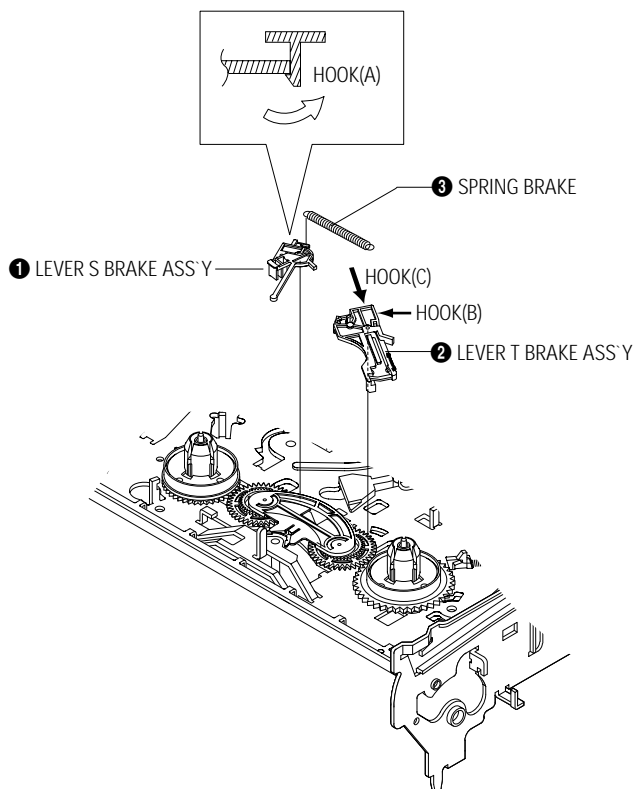


Fig. 4-22 Lever Brake S, T Ass'y Removal

### 1-2-14 Gear Idle Ass'y Removal

- 1) Push the Lever Idle ① in the direction of arrow "A", "B".
- 2) Lift the Lever Idle ①.

#### Assembly :

- 1) Apply oil in two Bosses of Lever Idle ①.
- 2) Assemble the Gear Idle ② with the Lever Idle ①.

**Note :** When replacing the Gear Idle ②, be sure to add oil in the boss of Lever Idle ①.

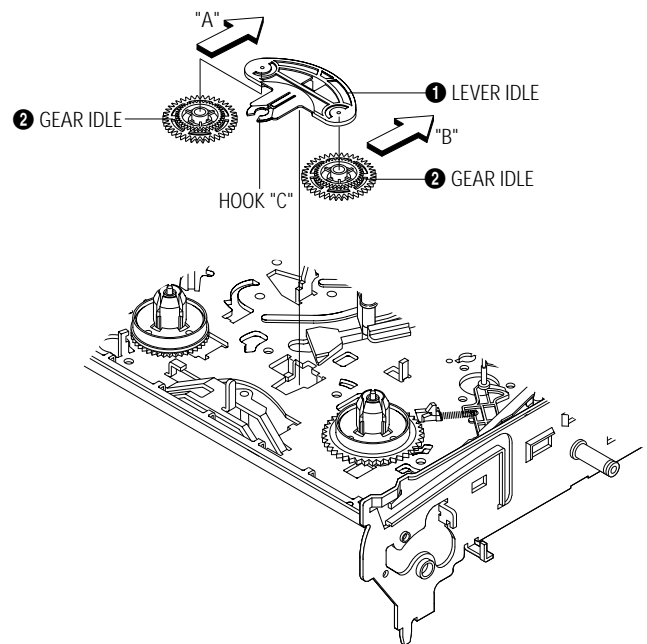


Fig. 4-23 Gear Idle Ass'y Removal

## 1-2-15 Disk S, T Reel Removal

- 1) Lift the Disk S, T Reel ❶, ❷.

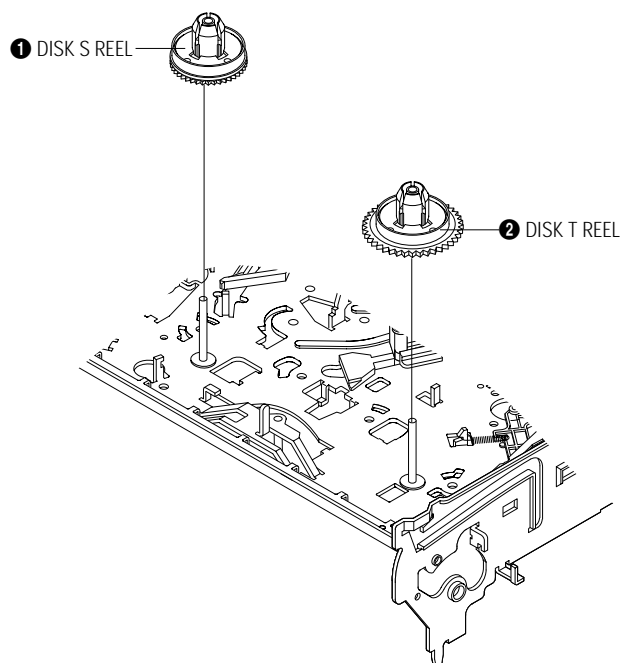


Fig. 4-24 Disk S, T Reel Removal

## 1-2-16 Holder Clutch Ass'y Removal

- 1) Remove the Washer Slit ❶.
- 2) Lift the Holder Clutch Ass'y ❷.

**Note :** When you reinstall Holder Clutch Ass'y

- 1) Check the condition of spring as shown in detail A.
- 2) Don't push Holder Clutch Ass'y down with excessive force Just insert Holder Clutch Ass'y into post center with dead force and Rotate it smoothly. Be sure to confirm that spring is in the slit of Gear Center Ass'y as shown in detail B.

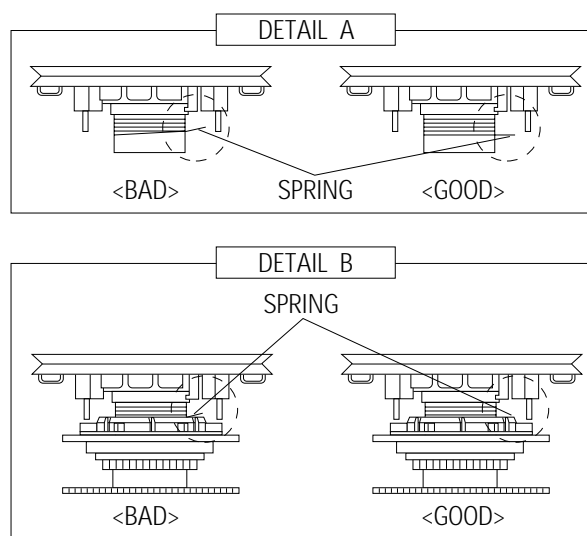
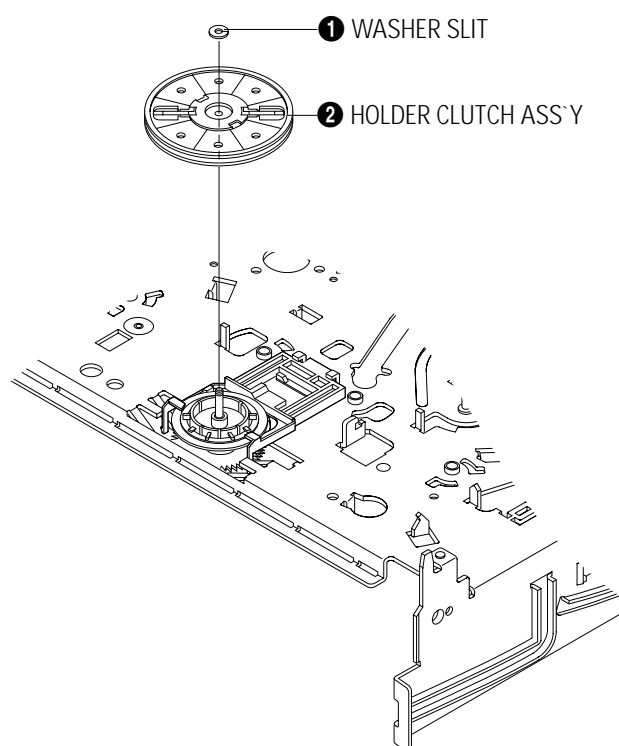


Fig. 4-25 Holder Clutch Ass'y Removal

### 1-2-17 Lever Up Down Ass'y, Gear Center Ass'y Removal

- 1) Remove the 2 hooks in the direction of arrow as shown Fig. 4-26 and lift the Lever Up Down Ass'y ❶.
- 2) Lift the Gear Center Ass'y ❷.

#### Assembly :

- 1) Insert the Lever Up Down Ass'y ❶ in the rectangular holes on Main Base as shown in Fig 4-27.
- 2) Lift the Lever Up Down Ass'y ❶ about 35°.  
(Refer to Fig 4-27)
- 3) Insert Ring of the Gear Center Ass'y ❷ in the Guide of the Lever Up Down Ass'y ❶.
- 4) Insert the Gear Center Ass'y ❷ in the post on Main Base.
- 5) Push down the Lever Up Down Ass'y ❶ for locking of the Hook.

#### Note :

- 1) Take care not to separate and sentence does not mark sense.
- 2) Be sure to confirm that Ring of the Gear Center Ass'y ❷ is in the Guide of the Lever Up Down Ass'y ❶ after finishing assembly of Lever Up Down Ass'y ❶ and Gear Center Ass'y ❷.

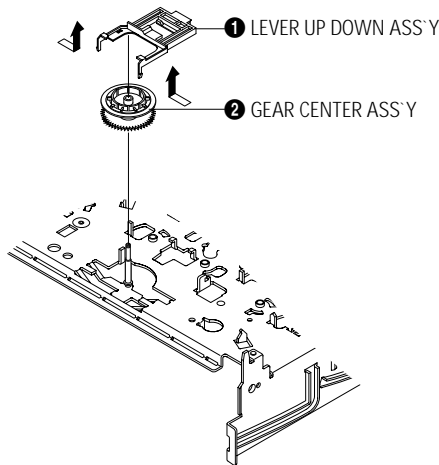


Fig. 4-26 Lever Up Down Ass'y Removal

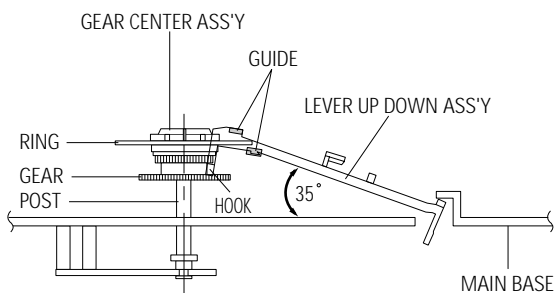


Fig. 4-27 Lever Up Down Ass'y Removal

### 1-2-18 Guide Cassette Door Removal

- 1) Lift the Hook [A].
- 2) Rotate the Guide Cassette Door ❶ in the direction of arrow.

**Note :** After reinstalling the Guide Cassette Door ❶ sure the Hook [A].

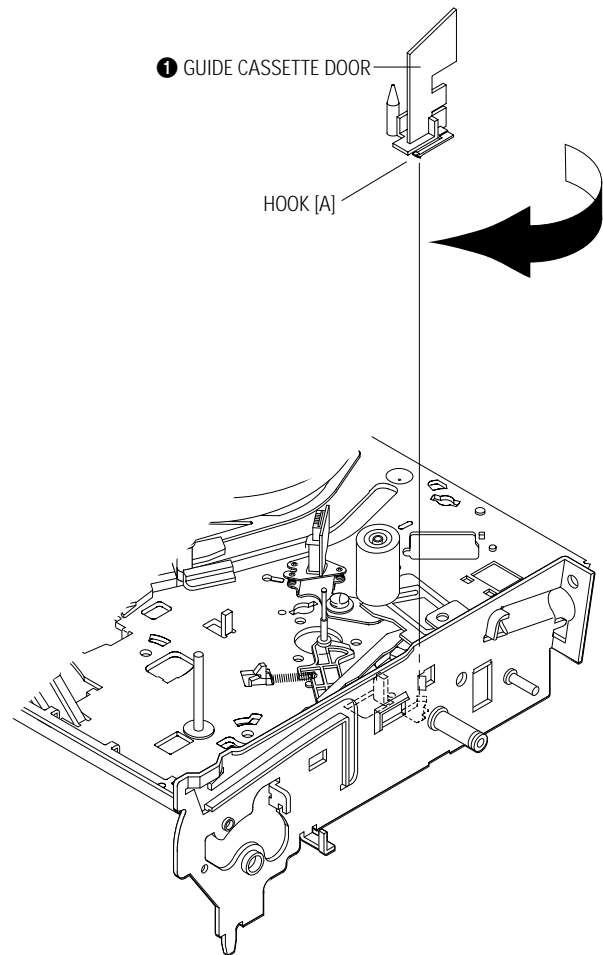


Fig. 4-28 Guide Cassette Door Removal



### 1-2-19 Lever Unit Pinch Ass'y, Plate Joint, Spring Pinch Drive Removal

- 1) Lift the Unit Pinch Ass'y ❶.
- 2) Remove the Plate Joint ❷ from Lever Pinch Drive.
- 3) Remove the Spring Pinch Drive ❸.

**Note :**

- 1) Take extreme care not to touch the grease on the Roller Pinch.
- 2) When reinstalling, be sure to apply grease on the post pinch roller.

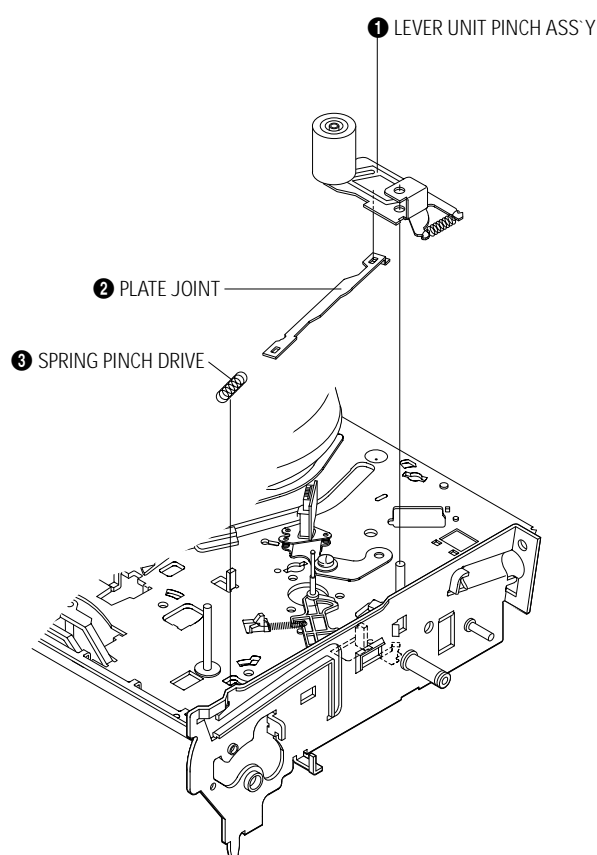


Fig. 4-29 Lever Unit Pinch Ass'y, Plate Joint, Spring Pinch Drive Removal

### 1-2-20 Lever #9 Guide Ass'y Removal

- 1) Remove the Spring #9 Guide ❶.
- 2) Lift the Spring #9 Guide Ass'y ❷ in the direction of arrow "A".

**Note :**

- 1) Take extreme care not to get grease on the tape Guide Post.
- 2) After reinstalling, check the bottom side of the Post #9 Guide to the top side of Main Base.

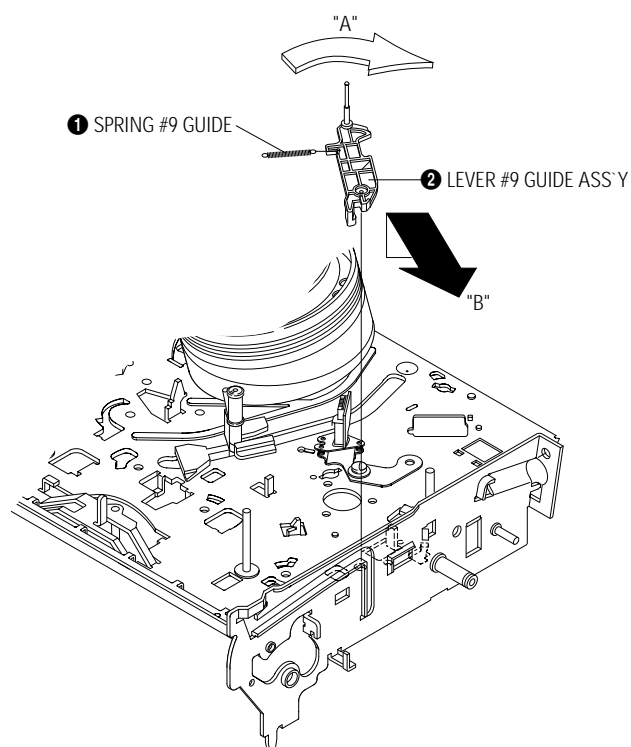


Fig. 4-30 Lever #9 Guide Ass'y Removal

## 1-2-21 FE Head Removal

- 1) Remove the screw ❶.
- 2) Lift the FE Head ❷.

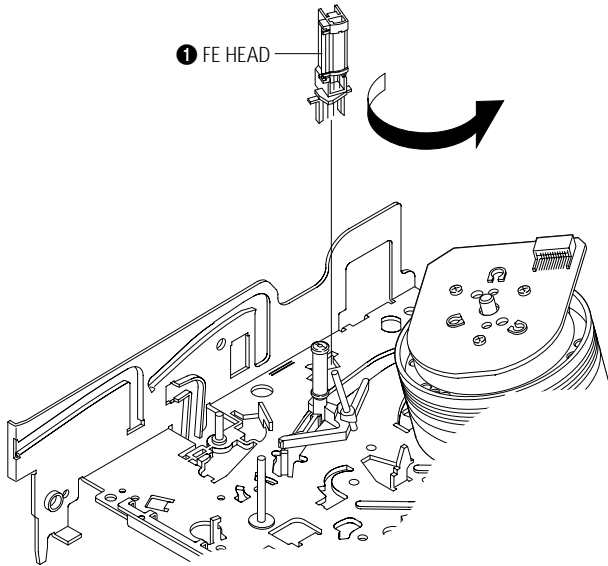


Fig. 4-31 FE Head Removal

## 1-2-22 ACE Head Removal

- 1) Pull out the FPC from connector of ACE Head Ass'y ❷.
- 2) Remove the screw ❶.
- 3) Lift the ACE Head Ass'y ❷.

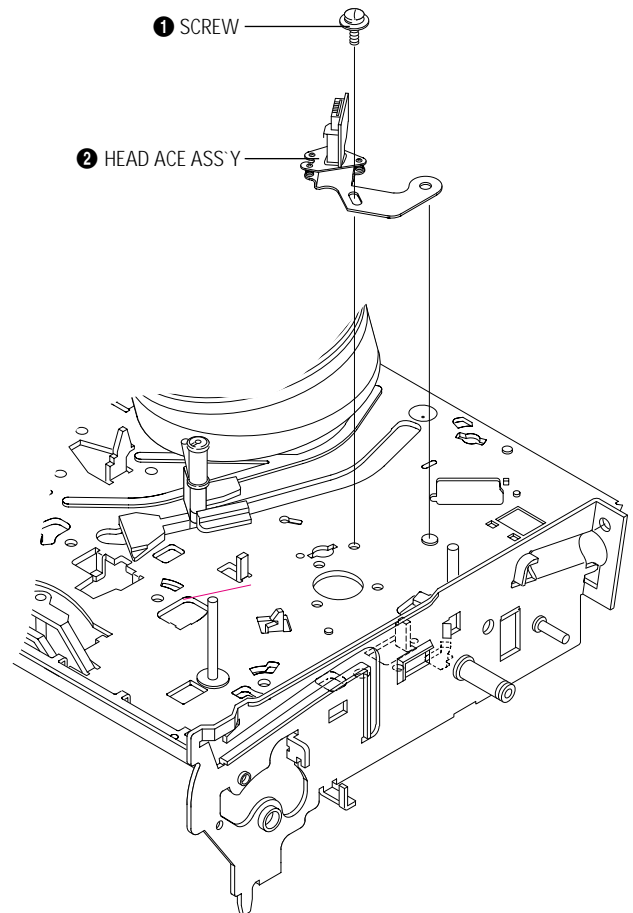


Fig. 4-32 ACE Head Removal

## 1-2-23 Slider S, T Ass'y Removal

- 1) Move the Slider S, T Ass'y ①, ② to slot, and then lift it to remove. (Refer to arrow)

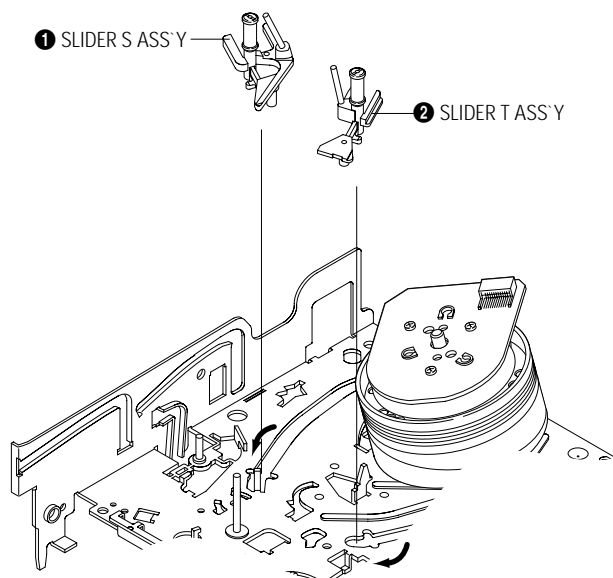


Fig. 4-33 Slider S, T Ass'y Removal

## 1-2-24 Plate Ground Deck, Cylinder Ass'y Removal

- 1) Remove the 3 Screws ①.
- 2) Lift the Plate Ground Deck ②.
- 3) Lift the Cylinder Ass'y ③.

### Assembly :

- 1) Match the 3 holes in the bottom of Cylinder ass'y ③ to the 3 holes of Main Base as attending not to drop or knock the Cylinder ass'y ③.
- 2) Tighten the 1 Screw ①.
- 3) Match the Plate Ground Deck ② to the Hole of Base Main.
- 4) Tighten the other 2 Screws ①.

### Note :

- 1) Take care not to touch the Cylinder Ass'y ③ and the tape guide post at reinstalling.
- 2) When reinstalling, Don't push down too much on Screw Driver.

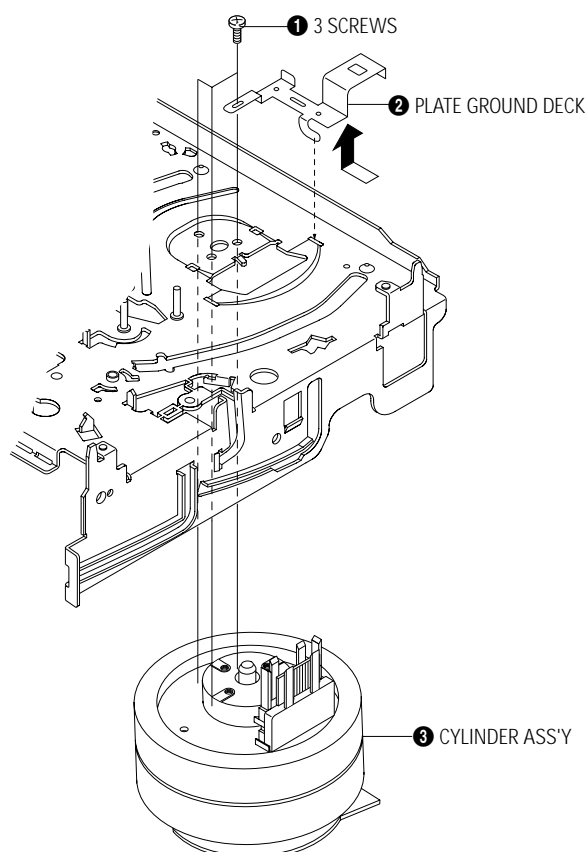


Fig. 4-34 Plate Ground Deck, Cylinder Ass'y Removal

## 1-2-25 Belt Pulley Removal

- 1) Remove the Belt Pulley ❶.

**Note :** Take extreme care not to get grease on Belt Pulley ❶ at assembling or reassembling.

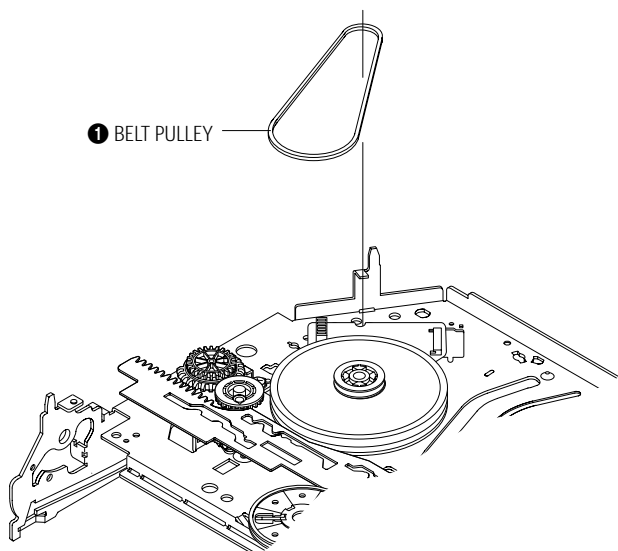


Fig. 4-35 Belt Pulley Removal

## 1-2-26 Damper Capstan, Motor Capstan Ass'y Removal

- 1) Remove the Damper Capstan ❶ in the direction of arrow.
- 2) Remove the 3 Screws ❷.
- 3) Remove the Motor Capstan Ass'y ❸.

### Assembly :

- 1) Match the 3 holes of Motor Capstan Ass'y ❸ to the 3 holes of Main Base. Be careful not to drop or knock the Motor Capstan Ass'y ❸.
- 2) Tighten the 3 Screws ❷ in the direction of arrow as shown detail drawing.
- 3) Assemble the Damper Capstan ❶.

**Note :** After tightening screws, check if there is gap between the head of screws and the top side of Main Base. There should have no gap between the head of screws and the top side of Main Base. After reinstalling, adjusting the tape transport system again.

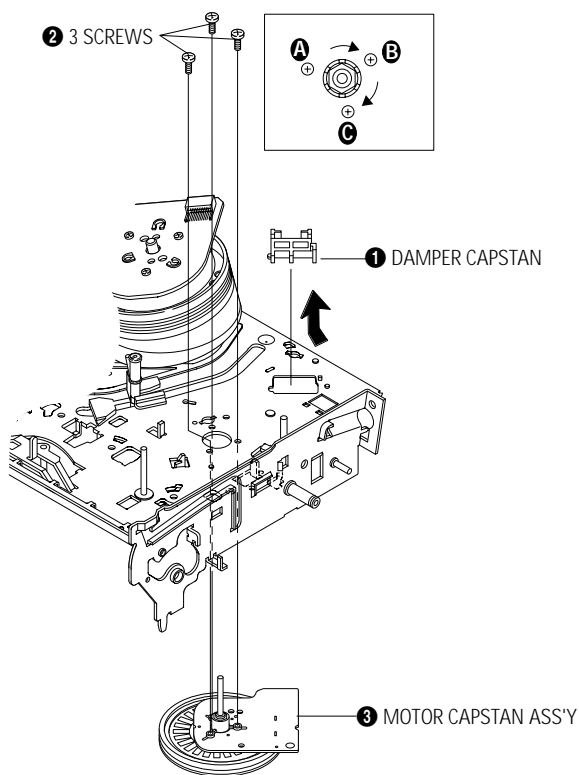


Fig. 4-36 Damper Capstan, Motor Capstan Ass'y Removal

### 1-2-27 Post #8 Guide Ass'y Removal

- 1) Rotate the Post #8 Guide Ass'y ❶ in the direction of arrow to lift up.

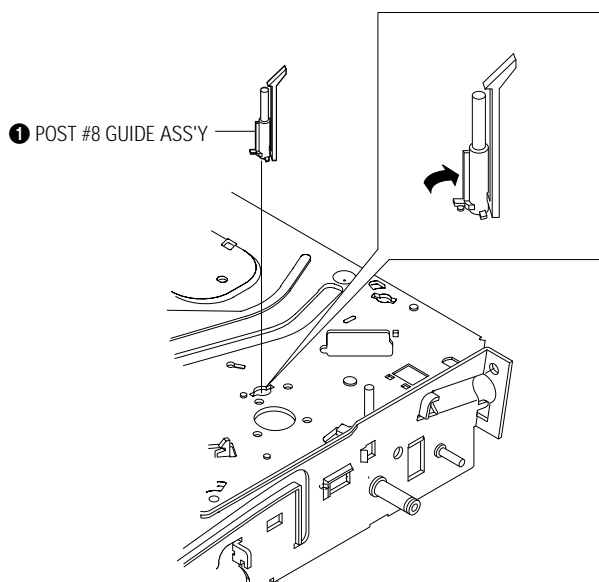


Fig. 4-37 Post #8 Guide Ass'y Removal

### 1-2-28 Level Head Cleaner Ass'y Removal (Optional)

- 1) Release the Hook ❶.
- 2) Lift the Lever Head Cleaner Ass'y ❷.

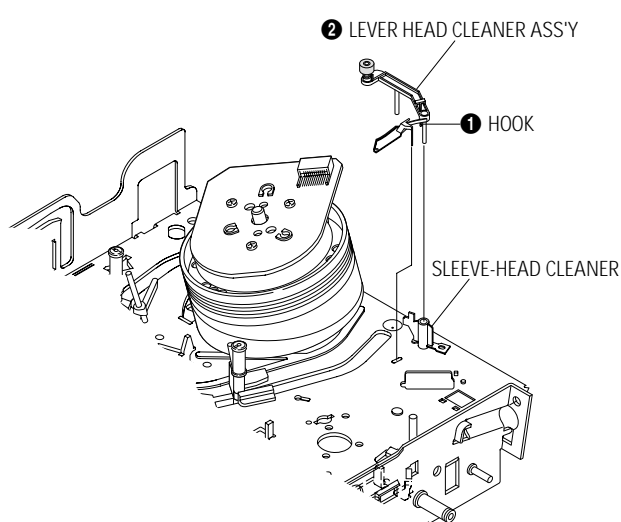


Fig. 4-38 Post #8 Guide Ass'y Removal

### 1-2-29 How to Eject the Cassette Tape (If the unit does not operate on condition that is inserted into housing ass'y)

- 1) Turn the Gear worm ❶ clockwise with screw driver. (Refer to arrow)  
(Other method : Remove the Screw of Motor Load Ass'y, Separate the Motor Load Ass'y)

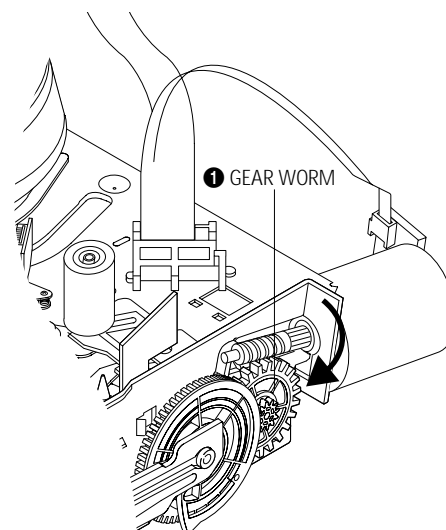


Fig. 4-39

- 2) When Slider S,T are approached in the position of unloading, rotate holder Clutch counterclockwise after inserting screw driver in the hole of frame's bottom in order to wind the unwinded tape. (Refer to Fig.4-40)  
(If you rotate Gear Worm ❶ continuously when tape is in state of unwinding, you may cause a tape contamination by grease and tape damage. Be sure to wind the unwinded tape in the state of set horizontally.)
- 3) Rotate Gear Worm ❶ clockwise using screw driver again up to the state of eject mode and then pick out the tape. (Refer to Fig.4-39)

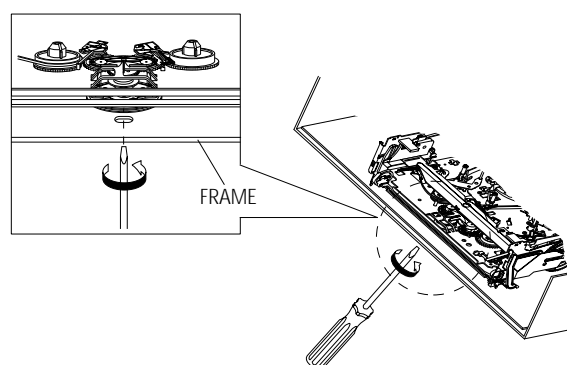


Fig. 4-40

### 1-3 The table of clearing, Lubrication and replacement time about principal parts

1) The replacement time of parts is not life of parts.

2) The table 1-1 is that the VCR Set is in normal condition (normal temperature, normal humidity).

The checking period may be changed owing to the condition of use, runtime and environmental conditions.

3) Life of the Cylinder Ass'y is depend on the condition of use.

4) See exploded view for location of each parts.

<Table 1-1>

*	Parts Name	Checking Period										Remark
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
T A P E P A T H S Y S T E M	POST TENSION	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	- To clean the parts, use patch and alcohol (solvent).
	SLANT POST S, T	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	#8 GUIDE SHAFT	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	CAPSTAN SHAFT	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	- After cleaning, use the video tape after alcohol is gone away completely.
	#9 GUIDE POST	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	#3 GUIDE POST	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	GUIDE ROLLER S, T	Δ	Δ	Δ	O	O	O	O	O	O	O	- We recommend to use oil [EP-50] or solvent.
	CYLINDER ASS'Y	Δ	O	O	O	O	O	O	O	O	O	
	FE HEAD	Δ	Δ	Δ	O	O	O	O	O	O	O	
	ACE HEAD	Δ	O	O	O	O	O	O	O	O	O	- One or two drops of oil should be applied after cleaning with alcohol.
	PINCH ROLLER	Δ	O	O	O	O	O	O	O	O	O	
	POST REEL S, T											
	SLEEVE TENSION											- Periodic time of applying oil (Apply oil after cleaning) - The excessive applying oil may be the cause of malfunction.
	POST CENTER											
	LEVER IDLE BOSS (2Point)											
D R I V I N G S Y S T E M	CAPSTAN MOTOR PULLEY	Δ	Δ	Δ	Δ	Δ	O	O	O	O	O	
	BELT PULLEY				O	O	O	O	O	O	O	
	HOLDER CLUTCH ASS'Y	Δ	O	O	O	O	O	O	O	O	O	
	GEAR CENTER ASS'Y		O	O	O	O	O	O	O	O	O	
	GEAR IDLE (2Point)		O	O	O	O	O	O	O	O	O	
	LOADING MOTOR		O	O	O	O	O	O	O	O	O	
B R A K E S Y S T E M	BAND BRAKE ASS'Y		O	O	O	O	O	O	O	O	O	
	BRAKE T ASS'Y		O	O	O	O	O	O	O	O	O	

Δ : Cleaning

O : Check and replacement in necessary

: Add Oil

## 5. Alignment and Adjustment

### 5-1 Reference

- 1) X-Point (Tracking center) adjustment, "Head switching adjustment" and "NVRAM option setting" can be adjusted with remote control.
- 2) When replacing the Micom (IC601) and NVRAM (IC605 ; EEPROM) be sure to adjust the "Head switching adjustment" and "NVRAM option setting".
- 3) When replacing the cylinder ass'y, be sure to adjust the "X-Point" and "Head switching adjustment".
- 4) Remote control used for same chassis as a accessory is available for all adjustments.
- 5) How to adjustment.
  - Press the "SW713" button on Main PCB to set the adjustment mode.
  - If the corresponding adjustment button is pressed, the adjustment is performed automatically.
  - If the adjustment is completed, be sure to turn the power off.

#### 5-1-1 Location of adjustment button of remote control

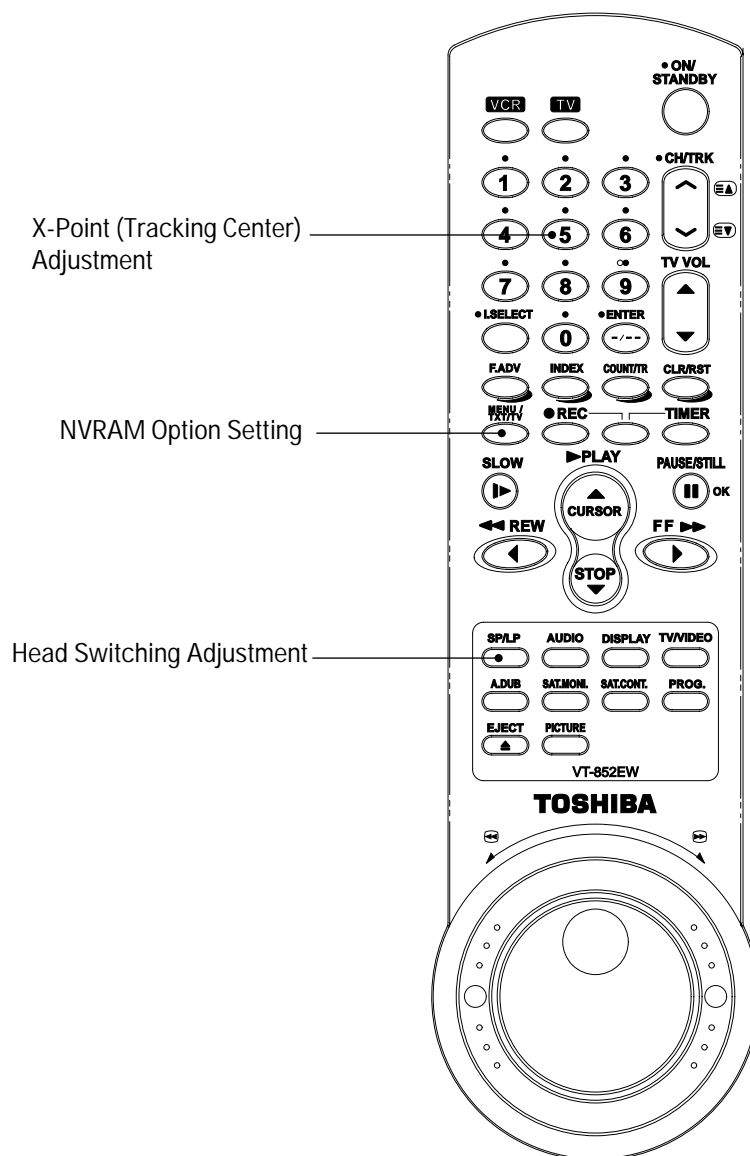


Fig. 5-1

## 5-1-2 SW713 location for adjustment mode setting

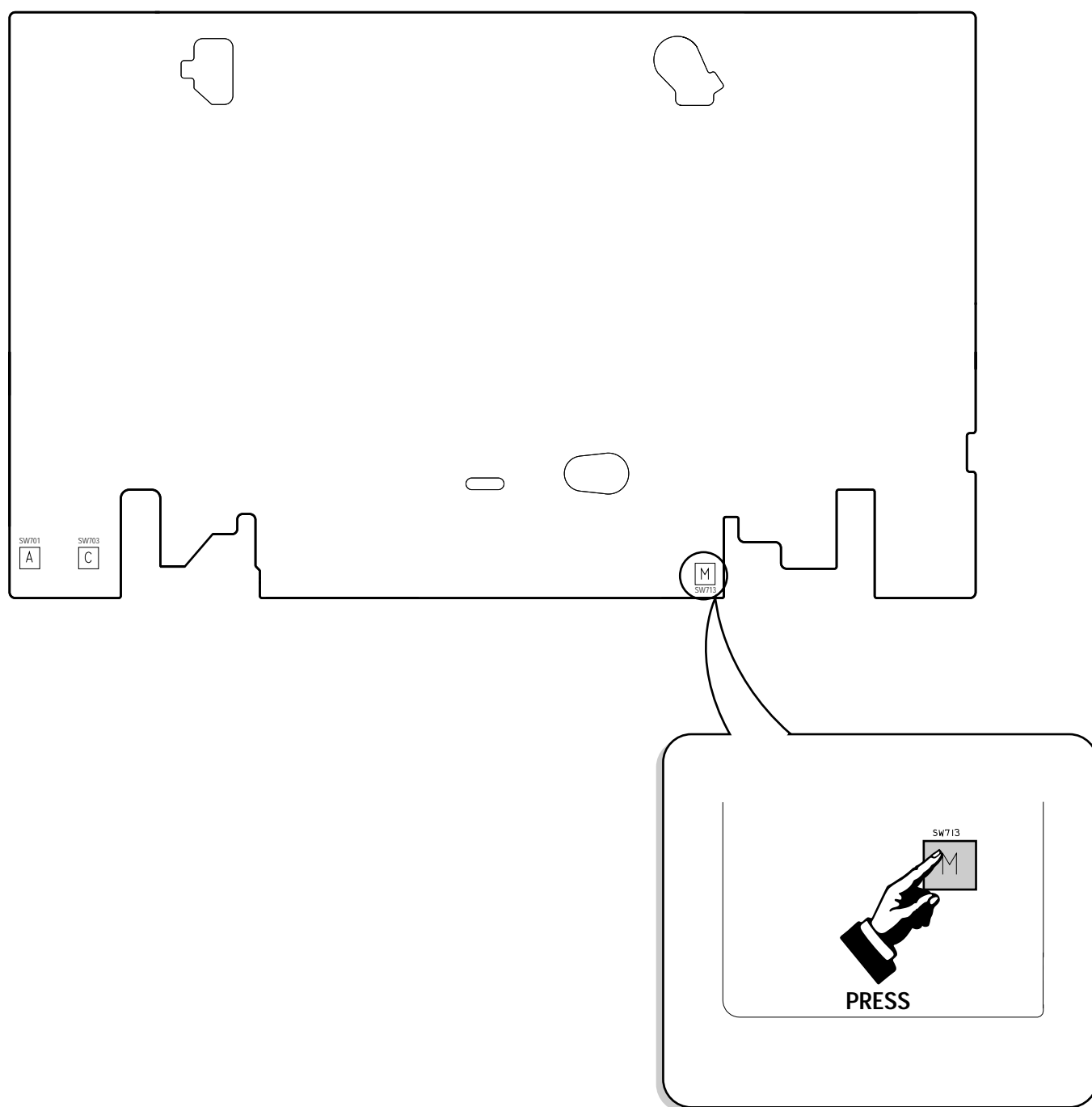


Fig. 5-2 Main PCB (Top View)



## 5-2 Mechanical Adjustment

### 5-2-1 Tape Transport System and Adjustment Locations

The tape transport system has been adjusted precisely in the factory. Alignment is not necessary except for the following :

- 1) Noise observed on the screen.
- 2) Tape damage.
- 3) Parts replacement in the tape transport system.

Lower flange height of tape guide is used as the reference for the transport adjustment.

To maintain the height of the tape guide and prevent damage, do not apply excessive force onto the main base.

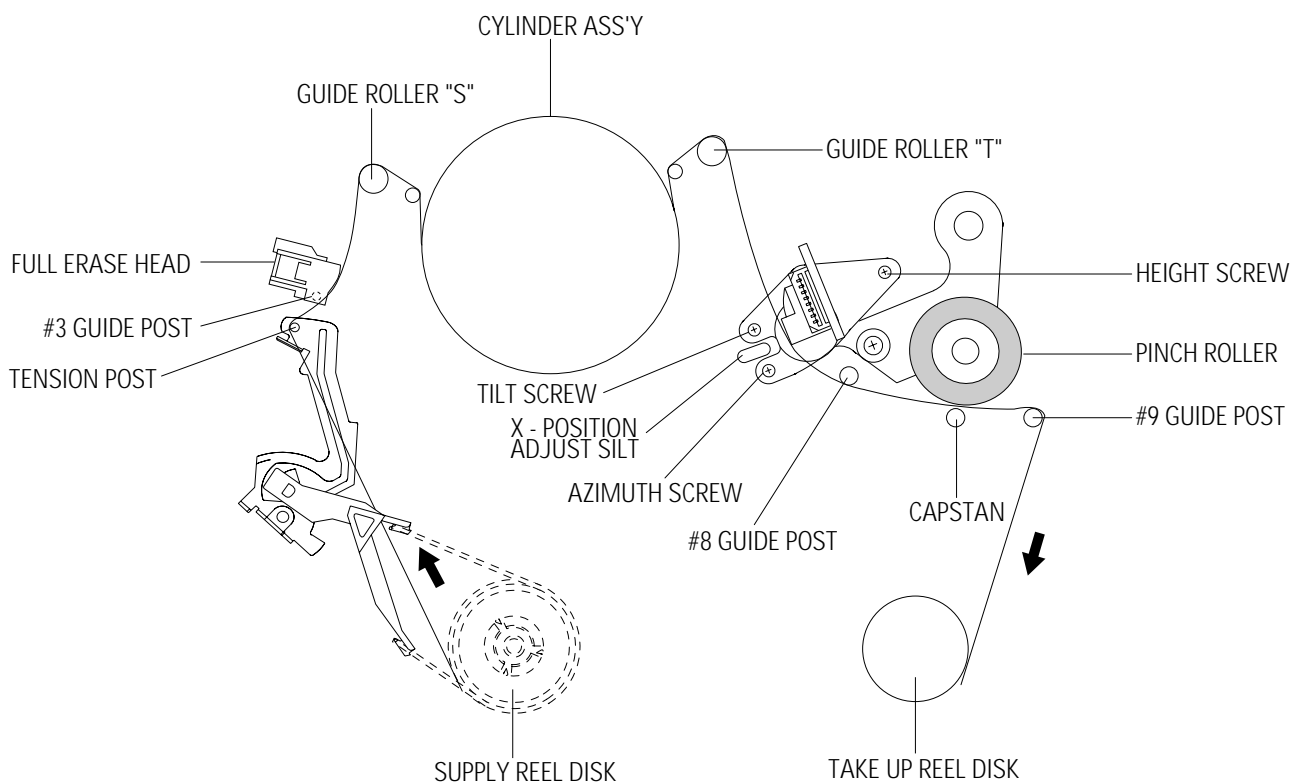


Fig. 5-3 Location of Tape Transport Adjustment

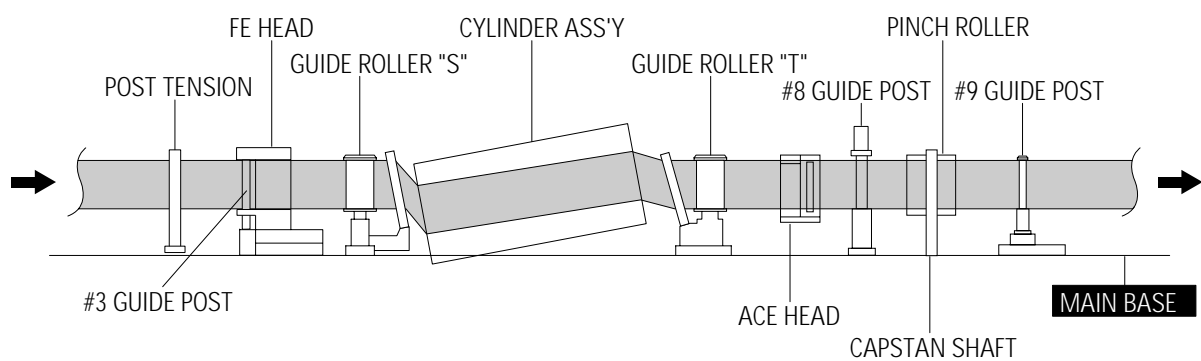


Fig. 5-4 Tape Travel Diagram

## 5-2-2 Tape Transport System Adjustment

When parts are replaced, perform the required adjustments by referring to procedures for the tape transport system. If there are any changes to the tape path, first run a T-120 tape and make sure excessive tape wrinkle does not occur at the tape guides.

- 1) If tape wrinkle is observed at the guide roller S, T, turn the guide roller S, T until wrinkle disappears.
- 2) If the tape wrinkle is still observed at the tape guide, perform the tilt adjustment of the ACE head.

### (1) ACE Head Assembly Adjustment

<b>Test point :</b>	TP601 (Control Pulse)
	TP602 (H'D S/W -Trigger)
	TP301 (Envelope)
	TP302 (Audio output)
	TP303 (Video output)
<b>Test tape :</b>	ST-N1
	BLANK TAPE : T-160

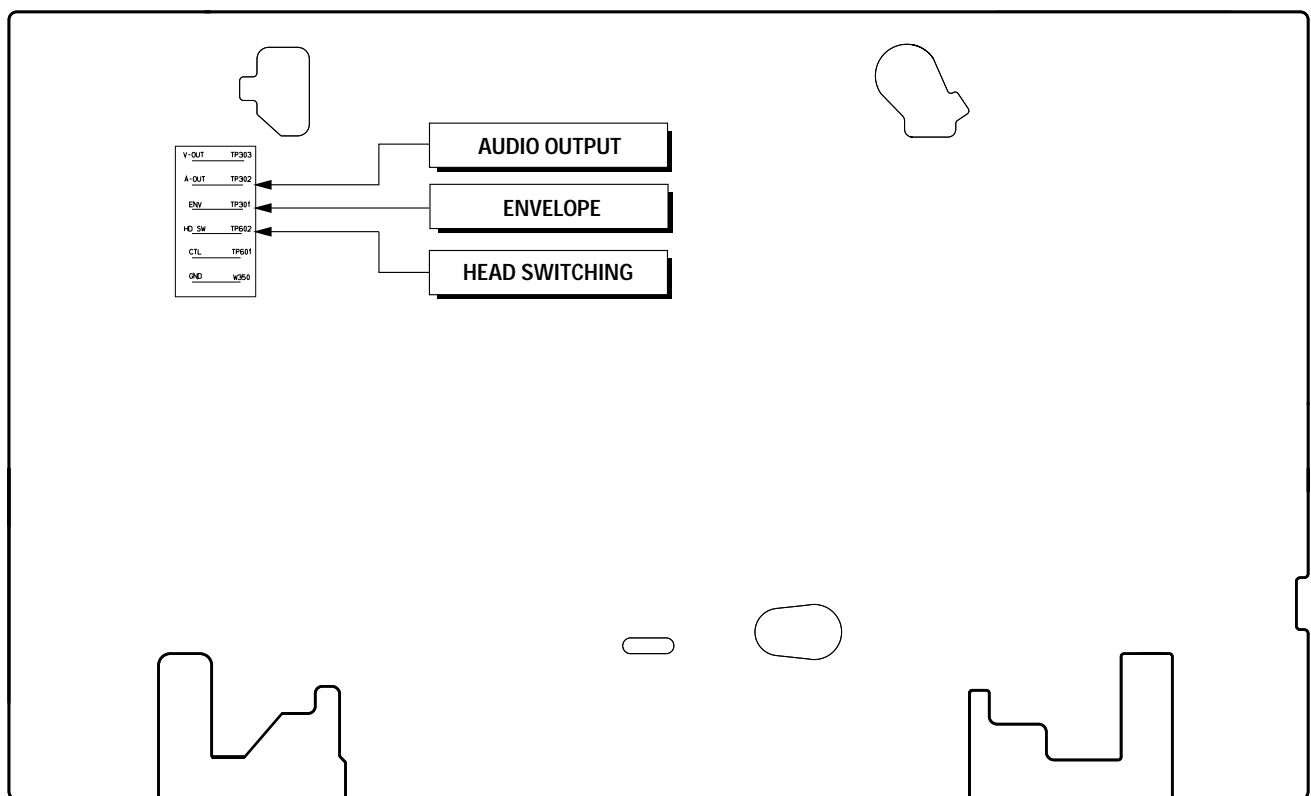


Fig. 5-5 Location of Test point (Main PCB-Top View)

## a. ACE HEAD HEIGHT ADJUSTMENT

- 1) Run the alignment tape (Color bar) in the playback mode.
- 2) Observe surface of the audio head using a dental mirror.
- 3) Turn screw (C) clockwise or counterclockwise until the gap of lower tape edge and the lower edge of the control head is about 0.25mm.  
(Refer to Fig. 5-6 and 5-7)

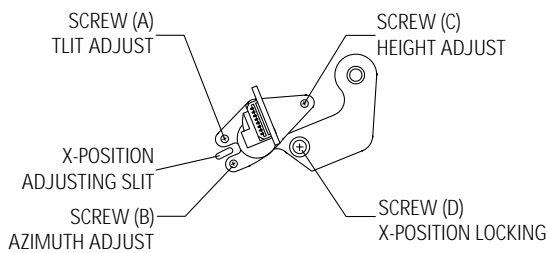


Fig. 5-6 Location of ACE Head Adjustment Screw

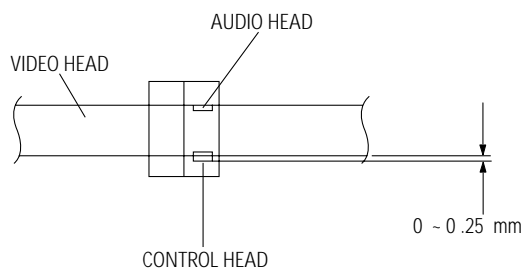


Fig. 5-7 ACE Head Height Adjustment

## b. ACE HEAD TILT ADJUSTMENT

- 1) Playback a blank tape and observe the position of the tape at the lower flange of tape guide.
- 2) Confirm that there is no curl or wrinkle at the lower flange of tape guide as shown in Fig. 5-8 (B).
- 3) If a curl or wrinkle of the tape occurs, slightly turn the screw (A) tilt adjust on the ACE head ass'y.
- 4) Reconfirm the ACE head height.

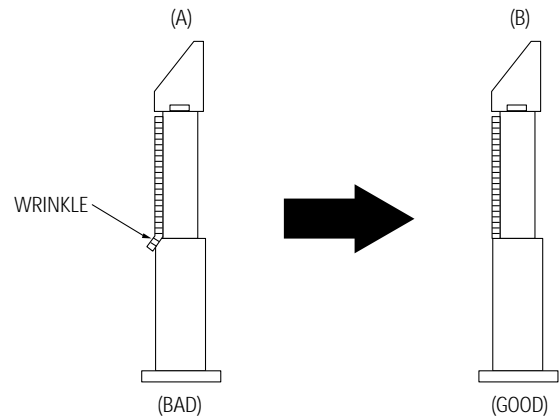


Fig. 5-8 Tape Guide Check

## c. AUDIO AZIMUTH ADJUSTMENT

- 1) Load alignment tape (Mono scope) and playback the 6KHz signal.
- 2) Connect channel-1 scope probe to audio output test point (TP302).
- 3) Adjust screw (B) to achieve maximum audio level.  
(See Fig. 5-6)

## d. ACE HEAD POSITION (X-POINT) ADJUSTMENT

- 1) Playback the alignment tape (Color bar).
- 2) Press the "SW713" button on Main PCB to set the adjustment mode. (See Fig. 5-2)
- 3) Press the "5" button of remote control then adjustment is operated automatically. (See Fig. 5-1)
- 4) Connect the CH-1 probe to TP303 (Envelope) the CH-2 probe to TP601 (H'D switching pulse) and then trigger to CH-1.
- 5) Insert the (-) driver into the X-Point adjustment hole and adjust it so that envelope waveform is maximum.
- 6) Turn the Power off.

## (2) Linearity adjustment (Guide roller S, T adjustment)

- 1) Playback the Mono Scope alignment tape (SP mode).
  - 2) Observe the video envelope signal on an oscilloscope (triggered by the video switching pulse).
  - 3) Make sure the video envelope waveform (at its minimum) meets the specification shown in Fig. 5-9.
- If it does not, adjust as follows :

### Note :

- a=Maximum output of the video RF envelope.
- b=Minimum output of the video RF envelope at the entrance side.
- c=Minimum output of the video RF envelope at the center point.
- d=Maximum output of the video RF envelope at the exit side.

- 4) If the section A in Fig. 5-10 does not meet the specification, adjust the guide roller S up or down.
- 5) If the section B in Fig. 5-10 does not meet the specification, adjust the guide roller T up or down.

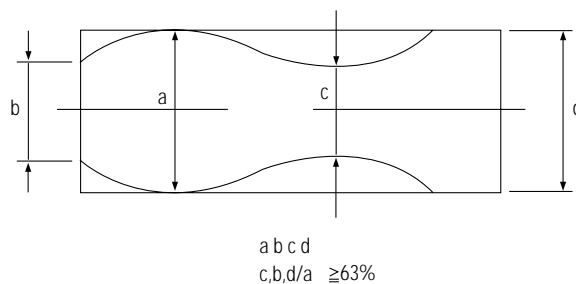


Fig. 5-9 Envelope Waveform Adjustment

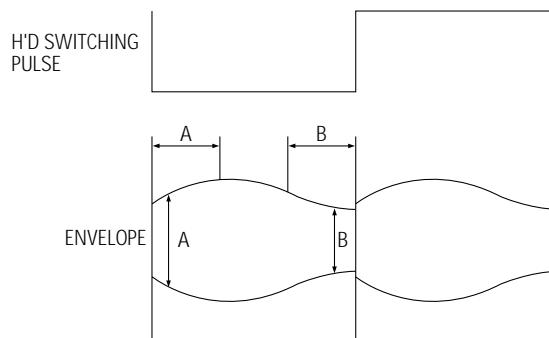


Fig. 5-10 Adjustment Points

- 6) Play back the Mono Scope alignment tape (SP mode).
- 7) Connect an oscilloscope CH-1 to the Envelope and CH-2 to the H'D SW Pulse for triggering.
- 8) Turn the guide roller heads with a flat head ( ) driver to obtain a flat video RF envelope as shown in Fig. 5-11.

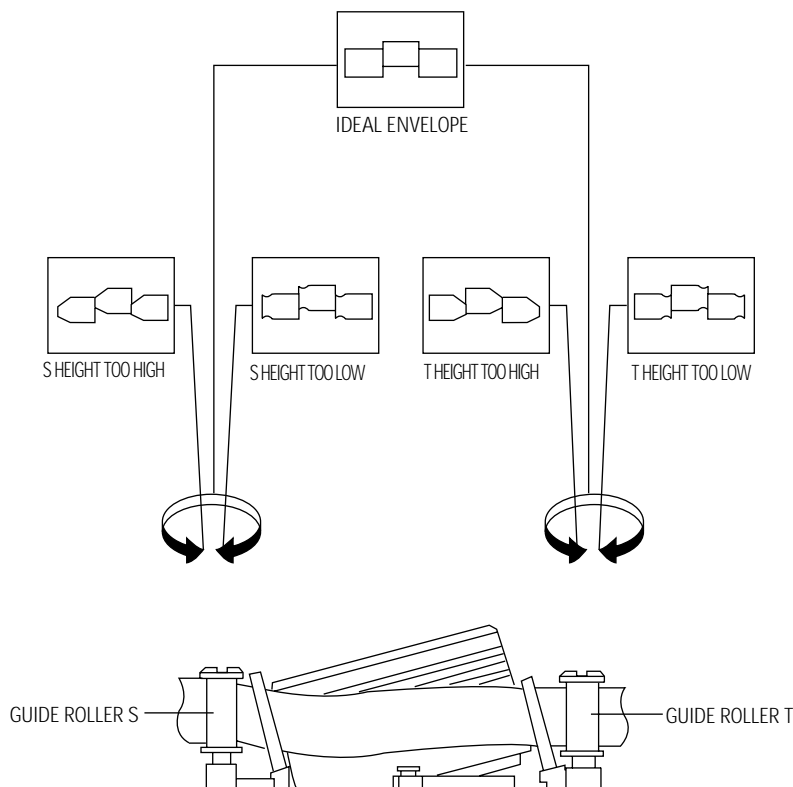


Fig. 5-11 Guide Roller S, T Height Adjustment

### (3) Check Transitional Operation from RPS to Play

Check transition from RPS mode to play mode :  
Using a pre-recorded SP tape, make sure the entry side of envelope comes to an appropriate steady state within 3 seconds (as shown in Fig. 5-12).  
If the envelope waveform does not reach specified peak-to-peak amplitude within 3 seconds, adjust as follows :

- 1) Make sure there is no gap between the supply roller lower flange and the tape.  
If there is a gap, adjust the supply guide roller again.
- 2) Change operation mode from the RPS to the play mode (again) and make sure the entry side of envelope rises within 3 second.

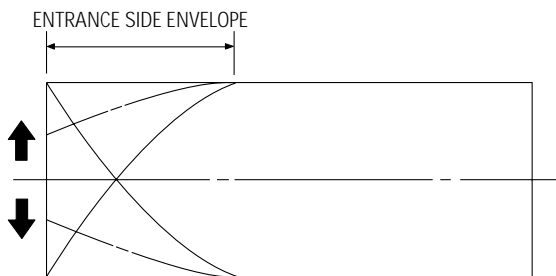


Fig. 5-12 Video Envelope Rising when Operation mode Changes from RPS to Play Mode

### (4) Envelope Check

- 1) Make recordings on T-120 (E-120) and T-160 (E-180) tape.  
Make sure the playback output envelope meets the specification as shown in Fig. 5-13.
- 2) Play back a self recorded tape (recording made on the unit using with T-120 (E-120)).  
The video envelope should meet the specification as shown in Fig. 5-13.  
In SP mode, (A) should equal (B).  
If the head gap is wide, upper cylinder should be checked.

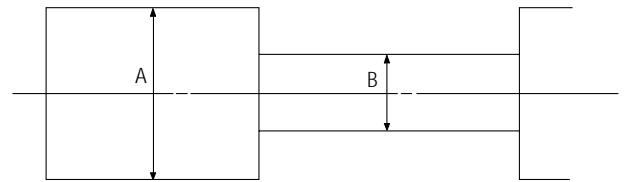


Fig. 5-13 Envelope Output and Output Level

### (5) Tape Wrinkle Check

- 1) Run the T-160 (E-180) tape in the playback, FPS, RPS and Pause modes and observe tape wrinkle at each guide.
- 2) If excessive tape wrinkle is observed, perform the following adjustments in Playback mode :
  - ◆ Tape wrinkle at the guide roller S, T section :  
Linearity adjustment.
  - ◆ Tape wrinkle at tape guide flange :  
ACE head assembly coarse adjustment.

## 5-2-3 Reel Torque

- 1) The rotation of the capstan motor causes the Holder Clutch Ass'y to rotate through the Belt Pulley.
- 2) The spring wrap PLAY/REV of holder clutch ass'y drives the disk reel S, T through gear idle by rotation of gear center ass'y.
- 3) Brake is operated by slider cam at FF/REW mode.
- 4) Transportation of accurate driving force is done by gears. (Gear Center Ass'y)

**Note :** If the spec. does not meet the followings specifications, replace the holder clutch ass'y and then recheck.

<Table 5-1>

MODE	TORQUE g/cm	GAUGE
PB	42 ± 11	Cassette Torquemeter
RPS	145 ± 30	Cassette Torquemeter

### 5-3 Head Switching Point Adjustment

- 1) Playback the alignment tape.
- 2) Press the “SW713” button on Main PCB with pincers to set the adjustment mode. (See Fig. 5-2 )
- 3) Press the “SP/LP” button of remote control then adjustment is operated automatically. (See Fig. 5-1)
- 4) Turn the Power off.

### 5-4 NVRAM Option Setting

- 1) NVRAM Option is adjusted at production line basically.
- 2) In case Micom (IC601) and NVRAM (IC605 ; EEPROM) is replaced, be sure to set the corresponding option number of the repaired model. (If the option is not set, the unit is not operated.)

- 1) Press the “SW713” button on Main PCB to set the adjustment mode. (See Fig. 5-2)
- 2) Press the “MENU” button on the remote control about 5 seconds then option setting display is appeared. (See Fig. 5-14)
- 3) Select the option number (See Table 5-2) of corresponding model with “CURSOR” button on the remote control.
- 4) If selecting the option number is completed, press the “OK” button of remote control. (If “OK” button is pressed, the selected number is changes reversed color. ; See Fig. 5-14)
- 5) Press the “MENU” button of remote control again to store the option number. (“PLEASE WAIT” is displayed for a second as shown Fig. 5-15 and this setting is completed.)
- 6) Turn the Power off.

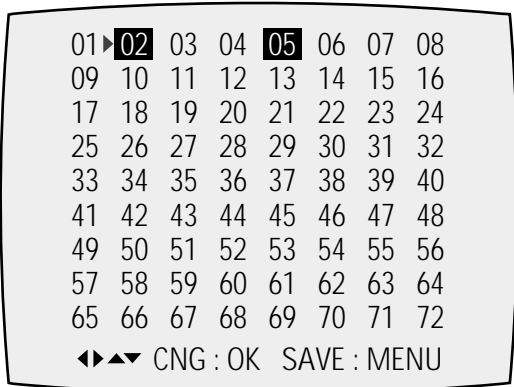


Fig. 5-14

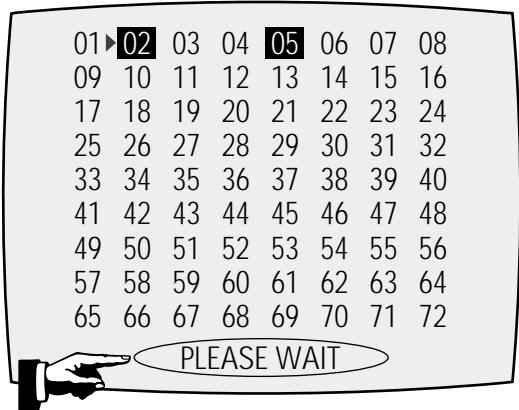


Fig. 5-15

<Table 5-2>

MODEL	OPTION NUMBER
V-852EW	2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 23, 29, 32, 34, 35, 36, 39, 40, 42, 46, 48, 49, 50, 52, 60, 61, 62, 63, 72

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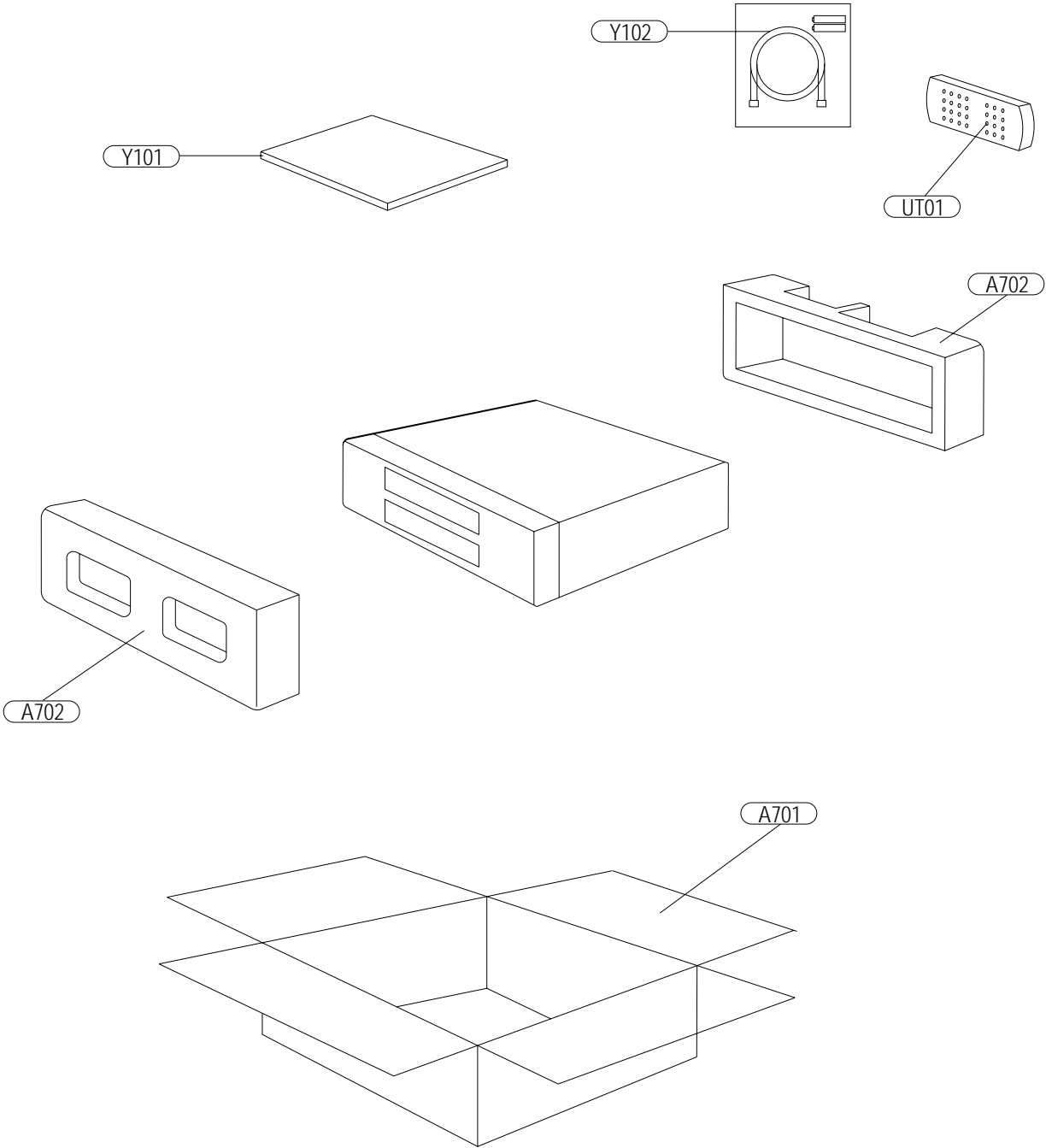
## 6. Exploded View

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6-1 Packing Assembly - - - - -	6-2
6-2 Instrument Assembly - - - - -	6-3
6-3 Mechanical Parts (Top Side) - - - - -	6-4
6-4 Mechanical Parts (Bottom Side) - - - - -	6-5

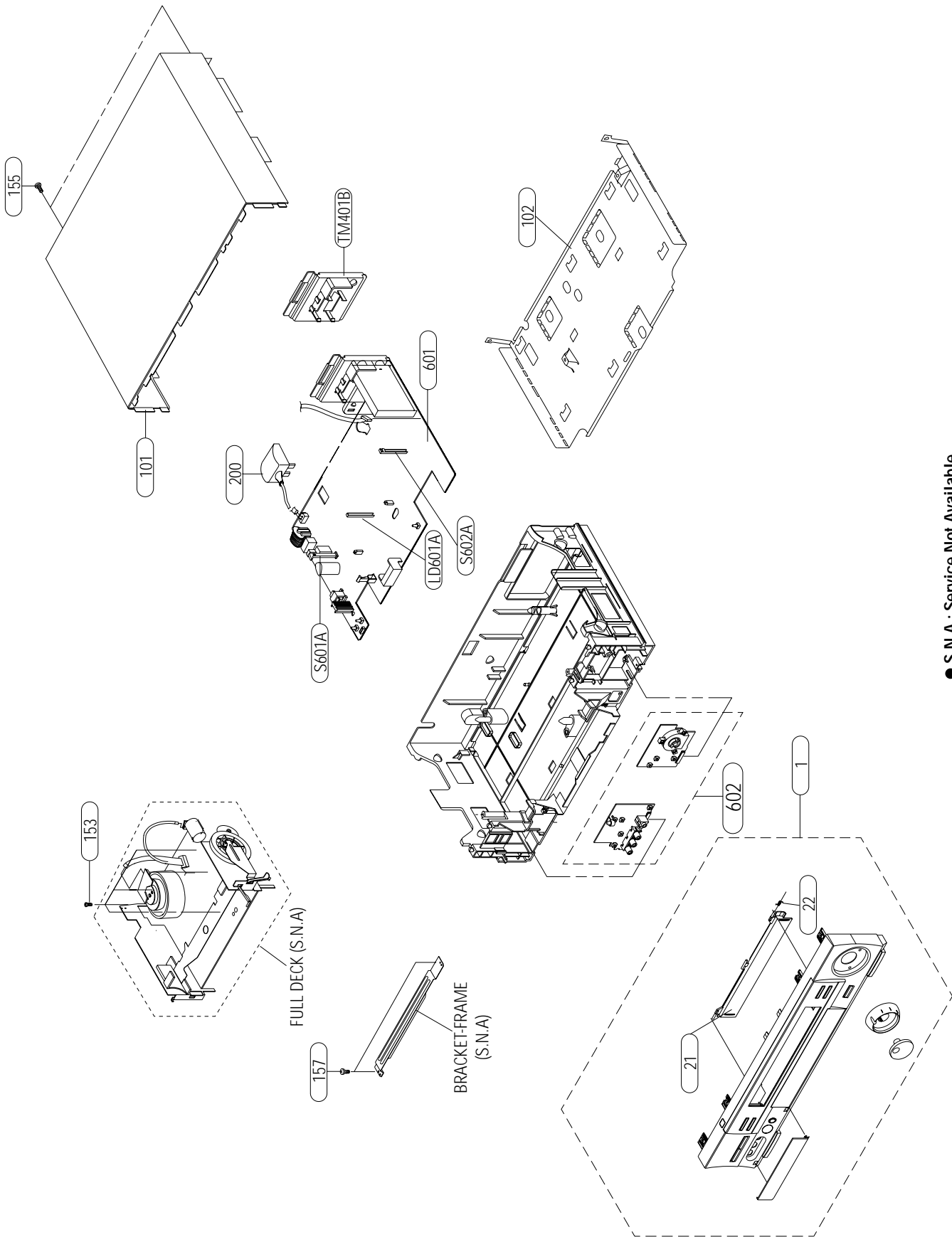
# 6-1 Packing Assembly

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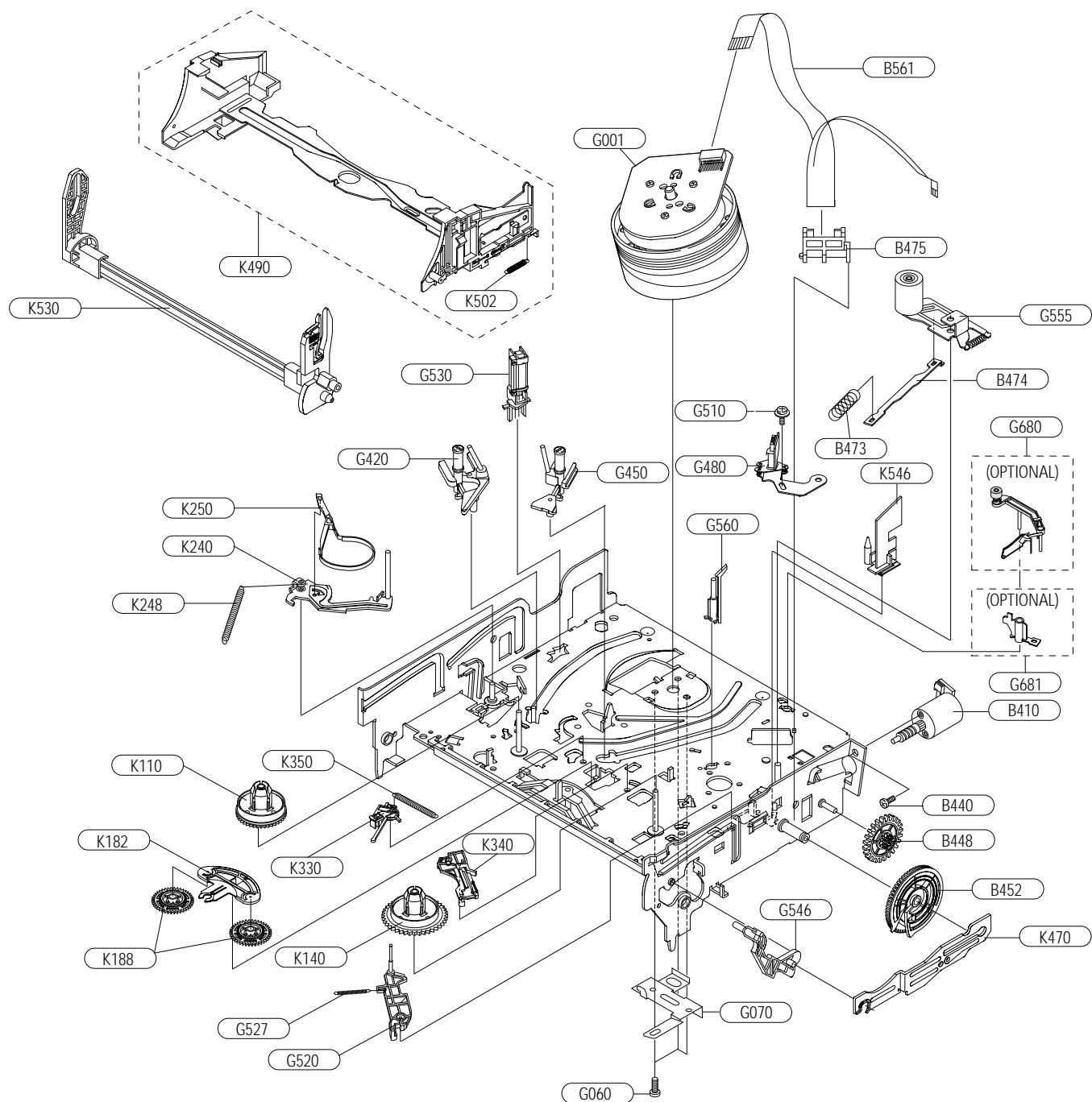


6-2 Instrument Assembly

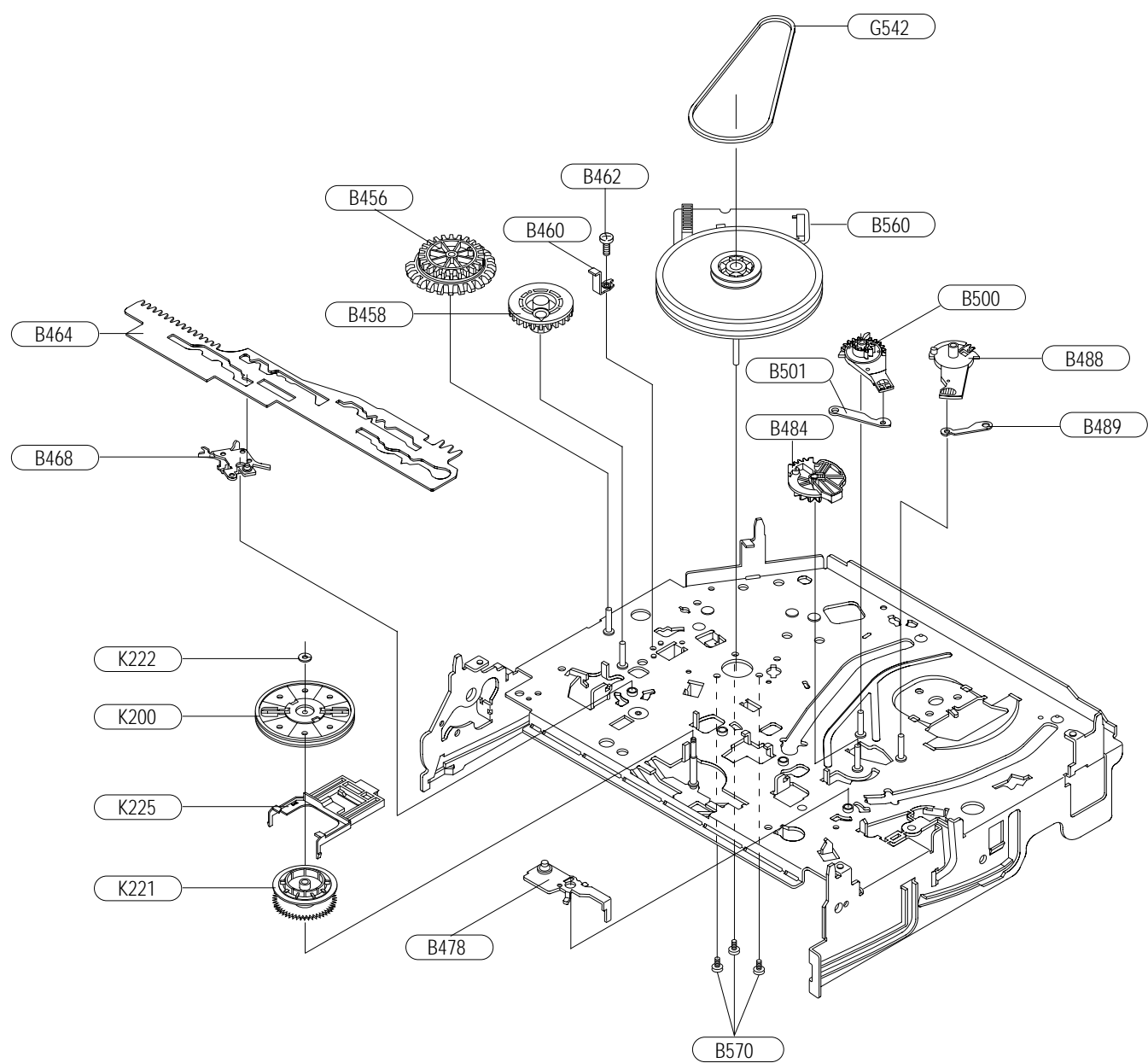


● S.N.A : Service Not Available

## 6-3 Mechanical Parts (Top Side)



6-4 Mechanical Parts (Bottom Side)



**MEMO**

## 7. Replacement Parts List

Loc.No.	TSB Parts No.	Reference No.	Description ; Specification	Remark
<b>- PACKING PARTS -</b>				
A701	AC69-00269A	BY731200	PACKING CASE;V-852EW,SW2,-,-,505,378,150	
A702	AC69-00040A	BY730463	CUSHION-F/B;M-686,EPS,-,-,-,-,-	
UT01	AC59-00063B	BY731068	REMOCON-ASSY;V-852EW,V-852UK/TSB,TOSHIBA	
Y101	AC68-01767A	BY634713	MANUAL USERS;V-852EW,TSB,GERMANY + ITALY	
Y101	AC68-01768A	BY634714	MANUAL USERS;V-852EW,TSB,SPAIN + RUSSIAN	
Y102	AC39-00017A	BY634253	CABLE-ETC-RF(PAL);-,MALE/FEMALE,1200MM,R	
<b>- INSTRUMENT PARTS -</b>				
1	AC97-01784B	BY731216	ASSY-FRONT PANEL;HIPS 94HB,V-852EW/TSB,S	
21	AC64-00525M	BY731127	DOOR-CASSETTE;V-852EW,ABS94HB NTR,-,-,-,-,	
22	AC61-62032A	BY730093	SPRING ETC-MASK;SV-C130,SUS,4.4,-,-,-,-,-	
101	AC64-00978C	BY731163	CABINET-TOP;V-852UK,PCM(SECC),T0.525,-,-,-	
102	AC63-00071A	BY731111	COVER-BOTTOM;V-852UK,SECC,T0.5,-,-,-,-,-	
153	AC60-12126A	70790218	SCREW-BH;-,FE,FZY,BH,-,-,4*12,-,-	
155	AC60-12134A	70790082	SCREW-TAP BH;-,FZB,2-4X16,FE,BH,-,-,2-4X	
157	AC60-10063A	70790002	SCREW-TAPTITE;-,L12,ZPC3,+,-,M3,-,SWRC	
200	AC39-10019A	BY634124	POWER CORD;KKP-419C,H03VVH2-F,VDE/KEMA-K	
CN3A1S	3809-001206	BY634415	CABLE-FLAT;30V,-20to+80C,140mm,6P,1.25mm	
LD601A	AC61-21009A	BY730082	HOLDER-LED;X-9,POM(M90-44),-,-,-,BLK,-	
S601A	AC61-00229A	BY731054	HOLDER-SENSOR;SCORPIO2,POM,-,-,-,BLACK,-	
S602A	AC61-00229A	BY731054	HOLDER-SENSOR;SCORPIO2,POM,-,-,-,BLACK,-	
TM401B	AC61-00231A	BY731091	CONNECTOR BOARD;V-852UK,HIPS94HB BLK,T2.	
<b>- MECHANICAL PARTS -</b>				
B410	AC31-00018A	BY631184	MOTOR-LOADING ASSY;-,SCORPIO2(TS-10A),-,	
B440	AC60-10515A	BY730072	SCREW-MACHINE;-,M3,L3,PH,+,-,-,ZPC,-	
B448	AC66-00008A	BY730743	GEAR-WORM WHEEL;TS-10,POM,0.8,40,-,NAT,3	
B452	AC66-00011A	BY730745	GEAR-FL CAM;TS-10,POM,0.8,59,-,BLK,48.48	
B456	AC66-00009A	BY730744	GEAR-JOINT 1;TS-10,POM,1.5,17.5(22),-,NA	
B458	AC66-00012A	BY730746	GEAR-JOINT 2;TS-10,POM,1.0,23,-,BLK,24.6	
B460	AC61-00090A	BY730851	BRACKET-GEAR;TS-10,SECC E20/20,0.8,-,-,-	
B462	AC60-10517A	BY730073	SCREW-TAP TITE;-,M2.6,L5,PH,+,-,-,ZPC,	
B464	AC66-00019A	BY730749	SLIDER-CAM;TS-10,SECC E20/20,1.2,-,-,-,-	
B468	AC66-00017A	BY730748	LEVER-PINCH DRIVE;TS-10,SECC E20/20,1.0	
B473	AC61-00105A	BY730723	SPRING ETC-PINCH DRIVE;TS-10,SUS304-WPB,	
B474	AC61-30180A	BY730244	PLATE-JOINT;X-9,SECC20/20,T0.8,-,-,-,-	
B475	AC47-00003A	BY731053	DAMPER-CAPSTAN;SCORPIO2,POM, NATUAL,-,-,-	
B478	AC66-00016A	BY730747	LEVER-TENSION DRIVE;TS-10,SECC E20/20,1	
B484	AC66-00030A	BY730755	GEAR-LOADING DR. ASS'Y;TS-10,POM+SWPB,-,-	
B488	AC66-00023A	BY730753	LEVER-S LOADING;TS-10,POM,-,-,-,-,NAT,-	
B489	AC66-00021A	BY730751	LINK-LOADING S;TS-10,SECC E20/20,0.8,-,-,-	
B500	AC66-00024A	BY730754	LEVER-T LOADING;TS-10,POM,-,-,-,-,NAT,-	
B501	AC66-00022A	BY730752	LINK-LOADING T;TS-10,SECC E20/20,0.8,-,-,-	
B560	AC31-00016A	BY631187	MOTOR-CAPSTAN;F2QVB05,SCORPIO2(TS-10A),-	
B561	3809-001270	BY634670	CABLE-FLAT;30V,80C,140MM,10P,1.25MM,UL28	
B570	AC60-10514A	BY730071	SCREW-CAPSTAN;-,M2.6,L6,PH,+,-,-,-,-	
G001	AC97-01754A	BY630267	ASSY-CYLINDER:6P-SEM'S HEAD,CTS10A-SEM,P	
G060	6006-001092	BY634416	SCREW-ASS'Y MACH;WS,PH,+,-,M3.0,L6.0,ZPC(Y	
G070	AC61-00161A	BY730728	PLATE-GROUND DECK;TS-10,SPTE,T0.3,-,-,-,-	
G420	AC66-80142A	BY730124	SLIDER-SUPPLY ASSY;X-9,X-9(TS),-,-,-,-,-	
G450	AC66-80141A	BY730123	SLIDER-TAKE UP ASSY;X-9,X-9(TS),-,-,-,-,-	
G480	AC97-01660A	BY630248	ASSY-HEAD ACE;-,SCORPIO2(TS-10A),VTR-1*2	
G510	6006-001075	BY730479	SCREW-ASS'Y TAPT;WSP,PH,+,-,M2.6,L5.0,ZPC(	
G520	AC66-00033A	BY730757	LEVER-#9 GUIDE ASS'Y;TS-10,-,-,-,-,-,-	
G527	AC61-60553A	BY730088	SPRING ETC-GUIDE 9;X-9,SUS304-WPB,0.25,-	
G530	AC33-00007A	BY730775	HEAD-FE;-,HVFHPO043A,-,-,-	
G542	AC66-60051A	BY730122	BELT-PULLEY;-,5CM-70,2 * 2,-,71.3,-,X-9	
G546	AC66-00005A	BY730741	LEVER-FL DOOR;TS-10,POM,-,-,-,-,NAT,-	
G555	AC66-00032A	BY730756	LEVER-UNIT PINCH ASS'Y;TS-10,-,-,-,-,-,-	
GP301	AC63-00043A	BY730731	SHIELD CASE-GROUND PCB;SV-643F,STPE,T0.3	
HS01	AC62-00003A	BY731110	HEAT SINK-MAIN;SV-653F,A1050R,T6,W15,L25	
HS02	AC62-00003A	BY731110	HEAT SINK-MAIN;SV-653F,A1050R,T6,W15,L25	
K110	AC66-10267A	BY730102	REEL-DISK S;X-9,POM,-,-,-,-,-,-	
K140	AC66-10268A	BY730103	REEL-DISK T;X-9,POM,-,-,-,-,-,-	
K182	AC66-30524A	BY730112	LEVER-IDLER;-,POM,-,-,-,-,-,-	
K188	AC66-00039A	BY730760	GEAR-IDLE;TS-10,PET K3372,0.5,-,-,-,NTR,28	
K200	AC61-21012A	BY730084	HOLDER-CLUTCH ASSY;X-9,-,-,-,-,-,-	
K221	AC66-20581A	BY730111	GEAR-CENTER ASSY;-,POM,M=0.5,-,-,HIGHT T.,	

## Replacement Parts List

Loc.No.	TSB Parts No.	Reference No.	Description ; Specification	Remark
K222	AC60-30306A	BY730076	WASHER-SLIT;-,-,ID2.1,OD5.0,TO.5,-,-,POLYS	
K225	AC66-00006A	BY730742	LEVER-UP DOWN;TS-10,POM,-,-,-,-,-,NAT,-	
K240	AC66-00035A	BY730759	LEVER-TENSION ASS'Y;TS-10,SECC E20/20+SU	
K248	AC61-00107A	BY730725	SPRING ETC-TENSION LEVER;TS-10,SUS304-WP	
K250	AC69-00104A	BY730762	BAND-BRAKE ASS'Y;TS-10,-,-,-,-,-,-,-	
K330	AC66-30550A	BY730121	LEVER-S.BRAKE ASSY;-,-,POM+SUS,-,-,-,-,-,X-9	
K340	AC66-30549A	BY730120	LEVER-T.BRAKE ASSY;-,-,POM+SUS,-,-,-,-,-,X-9	
K350	AC61-00106A	BY730724	SPRING ETC-BRAKE;TS-10,SUS304-WPB,-,-,-,-,-	
K470	AC66-00020A	BY730750	SLIDER-FL DRIVE;TS-10,SECC E20/20,1.0,-,-	
K490	AC61-00120A	BY730726	HOLDER-FL CASS. ASS'Y;TS-10,-,-,-,-,-,-,-	
K502	AC61-60561A	BY730091	SPRING ETC-FL LEVER-LR;X-9,SUS304 WPB,OD	
K530	AC66-00034A	BY730758	LEVER-FL ARM ASS'Y;TS-10,-,-,-,-,-,-,-	
K546	AC61-50658A	BY730086	GUIDE-CASS. DOOR;X-9,POM,-,-,-,-,-,NTR	
SC01	6003-000283	22797145	SCREW-TAPTITE;BH,+,B,M3,L8,ZPC(YEL),SM20	
SC02	6003-000283	22797145	SCREW-TAPTITE;BH,+,B,M3,L8,ZPC(YEL),SM20	

**- ELECTRICAL PARTS -**

601	AC92-01098A	BY630294	ASSY PCB-MAIN;V-832EW/TSB,5D,G/I/K HIFI
602	AC94-00091M	BY630277	ASSY-F. A/V,SRC,MIC,J/S;V-852EF,F.AV,SRC

**< INTEGRATED CIRCUITS >**

IC1SS1	0604-000186	BY530021	PHOTO-COUPLER;TR,-,-,200mW,DIP-4,ST	⚠
IC1SS2	AC14-12006D	70795271	IC;KA431Z,TO-92,TAPING	
IC301	1204-001922	BY631191	IC-VIDEO PROCESS;LA71750M,QFP,100P,-,-,PLA	
IC4N01	1204-001765	BY631149	IC-AUDIO PROCESSOR;MSP3417D(PQFP),PQFP,4	
IC501	1204-001920	BY631189	IC-AUDIO PROCESSOR;LA72646M,QFP,80P,14X1	
IC601	AC09-00326A	BY631195	IC MICOM;N128-A67-3BA,V-652F,100PINS,5V	
IC604	AC14-12006C	70795269	IC;KA7533,DIP,-	
IC605	1103-001171	BY631127	IC-EEPROM;L51DC,16KBit,DIP,8P,300MIL,10m	
IC6P01	1204-001794	BY631157	IC-AUDIO PROCESSOR;LC74775NM-9808,MFP,30	
IC701	1003-001443	BY631188	IC-LED DRIVER;PT6959,SOIC,28P,300MIL,-,-	
IC750	AC09-00315A	BY631193	IC MICOM;789026GB-A81-8ES,V-652F-AVLINK	
ICM01	AC14-00006A	BY631113	IC-DUAL OP-AMP;NJM2068M,SOP,-,8P,V-860UK	

**< TRANSISTORS >**

PT601	0604-001206	BY530048	PHOTO-INTERRUPTER;TR,-,-,150mW,CY5894102,B
PT602	0604-001206	BY530048	PHOTO-INTERRUPTER;TR,-,-,150mW,CY5894102,B
Q1P101	0501-000616	70693265	TR-SMALL SIGNAL;KSC2328A-Y,NPN,1W,TO-92L
Q1P102	0501-000616	70693265	TR-SMALL SIGNAL;KSC2328A-Y,NPN,1W,TO-92L
Q1P103	0501-000616	70693265	TR-SMALL SIGNAL;KSC2328A-Y,NPN,1W,TO-92L
Q1P104	0501-000610	70693410	TR-SMALL SIGNAL;KSA928A-Y,PNP,1W,TO-92L,
Q1P105	0504-000116	70795137	TR-DIGITAL;KSR1001,NPN,300MW,4.7K/4.7K,T
Q1P106	0501-000398	70795136	TR-SMALL SIGNAL;KSC945,NPN,250mW,TO-92,T
Q1P107	0504-000142	70693084	TR-DIGITAL;KSR2001,PNP,300MW,4.7K/4.7K,T
Q1P108	0501-000616	70693265	TR-SMALL SIGNAL;KSC2328A-Y,NPN,1W,TO-92L
Q1SR01	0502-001207	BY530070	TR-POWER;-,-,NPN,40000MW,TO-220F,ST,15-30
Q1SR02	0501-000442	70795142	TR-SMALL SIGNAL;KTC3203-Y,NPN,400mW,TO-9
Q350	0501-000303	70795134	TR-SMALL SIGNAL;KSA733,PNP,250mW,TO-92,T
Q351	0501-000303	70795134	TR-SMALL SIGNAL;KSA733,PNP,250mW,TO-92,T
Q3A01	0501-000398	70795136	TR-SMALL SIGNAL;KSC945,NPN,250mW,TO-92,T
Q3A02	0501-000303	70795134	TR-SMALL SIGNAL;KSA733,PNP,250mW,TO-92,T
Q3A03	0501-000442	70795142	TR-SMALL SIGNAL;KTC3203-Y,NPN,400mW,TO-9
Q3A04	0501-000442	70795142	TR-SMALL SIGNAL;KTC3203-Y,NPN,400mW,TO-9
Q3A05	0501-000442	70795142	TR-SMALL SIGNAL;KTC3203-Y,NPN,400mW,TO-9
Q3A06	0501-000303	70795134	TR-SMALL SIGNAL;KSA733,PNP,250mW,TO-92,T
Q3D01	0501-000442	70795142	TR-SMALL SIGNAL;KTC3203-Y,NPN,400mW,TO-9
Q3D02	0501-000303	70795134	TR-SMALL SIGNAL;KSA733,PNP,250mW,TO-92,T
Q3D07	0504-000119	BY530014	TR-DIGITAL;KSR1004,NPN,300MW,47K/47K,TO-
Q601	0504-000119	BY530014	TR-DIGITAL;KSR1004,NPN,300MW,47K/47K,TO-
Q603	0501-000398	70795136	TR-SMALL SIGNAL;KSC945,NPN,250mW,TO-92,T
Q6B01	0501-000398	70795136	TR-SMALL SIGNAL;KSC945,NPN,250mW,TO-92,T
Q6B03	0501-000398	70795136	TR-SMALL SIGNAL;KSC945,NPN,250mW,TO-92,T
Q6B04	0501-000398	70795136	TR-SMALL SIGNAL;KSC945,NPN,250mW,TO-92,T
Q6P01	0501-000303	70795134	TR-SMALL SIGNAL;KSA733,PNP,250mW,TO-92,T
Q6P02	0501-000303	70795134	TR-SMALL SIGNAL;KSA733,PNP,250mW,TO-92,T
Q802	0504-000119	BY530014	TR-DIGITAL;KSR1004,NPN,300MW,47K/47K,TO-
Q803	0504-000119	BY530014	TR-DIGITAL;KSR1004,NPN,300MW,47K/47K,TO-
Q804	0504-000142	70693084	TR-DIGITAL;KSR2001,PNP,300MW,4.7K/4.7K,T
Q806	0504-000142	70693084	TR-DIGITAL;KSR2001,PNP,300MW,4.7K/4.7K,T
Q809	0501-000398	70795136	TR-SMALL SIGNAL;KSC945,NPN,250mW,TO-92,T
Q810	0501-000398	70795136	TR-SMALL SIGNAL;KSC945,NPN,250mW,TO-92,T
QM01	0501-000398	70795136	TR-SMALL SIGNAL;KSC945,NPN,250mW,TO-92,T
S601	0603-001011	BY530003	PHOTO TR;NPN,35V,6V,50mA,75mW,BK
S602	0603-001011	BY530003	PHOTO TR;NPN,35V,6V,50mA,75mW,BK

Loc.No.	TSB Parts No.	Reference No.	Description ; Specification	Remark
< DIODES >				
D1P101	0401-000101	70795150	DIODE-SWITCHING;1N4148,100V,200mA,DO-35,	
D1P102	0401-000101	70795150	DIODE-SWITCHING;1N4148,100V,200mA,DO-35,	
D1P103	0401-000101	70795150	DIODE-SWITCHING;1N4148,100V,200mA,DO-35,	
D1SD11	0402-001195	BY430011	DIODE-RECTIFIER:F1T4,400V,1.0A,TS-1,TP	
D1SD31	0402-001195	BY430011	DIODE-RECTIFIER:F1T4,400V,1.0A,TS-1,TP	
D1SR11	0401-000101	70795150	DIODE-SWITCHING;1N4148,100V,200mA,DO-35,	
D1SS01	0402-001196	BY430012	DIODE-RECTIFIER:1T5,600V,1A,TS-1,TP	
D1SS02	0402-001196	BY430012	DIODE-RECTIFIER:1T5,600V,1A,TS-1,TP	
D1SS03	0402-001196	BY430012	DIODE-RECTIFIER:1T5,600V,1A,TS-1,TP	
D1SS04	0402-001196	BY430012	DIODE-RECTIFIER:1T5,600V,1A,TS-1,TP	
D1SS11	0402-000012	BY430047	DIODE-RECTIFIER:UF4007,1KV,1A,DO-41,TP	
D1SS31	0402-001195	BY430011	DIODE-RECTIFIER:F1T4,400V,1.0A,TS-1,TP	
D1SS32	0402-001194	BY430010	DIODE-RECTIFIER:UG2D,200V,2A,DO-204AC,TP	
D1SS33	0404-001097	BY430051	DIODE-SCHOTTKY:SG45,45V,7500mA,TO-220A,B	
D301	0401-000101	70795150	DIODE-SWITCHING;1N4148,100V,200mA,DO-35,	
D302	0402-000127	70796385	DIODE-RECTIFIER:1N4002,100V,1A,DO-41,TP	
D410	0402-000127	70796385	DIODE-RECTIFIER:1N4002,100V,1A,DO-41,TP	
D4N01	0401-000101	70795150	DIODE-SWITCHING;1N4148,100V,200mA,DO-35,	
D4N02	0401-000101	70795150	DIODE-SWITCHING;1N4148,100V,200mA,DO-35,	
D601	0401-000101	70795150	DIODE-SWITCHING;1N4148,100V,200mA,DO-35,	
D603	0401-000101	70795150	DIODE-SWITCHING;1N4148,100V,200mA,DO-35,	
D605	0402-000127	70796385	DIODE-RECTIFIER:1N4002,100V,1A,DO-41,TP	
D612	0402-000127	70796385	DIODE-RECTIFIER:1N4002,100V,1A,DO-41,TP	
D701	0401-000101	70795150	DIODE-SWITCHING;1N4148,100V,200mA,DO-35,	
D702	0401-000101	70795150	DIODE-SWITCHING;1N4148,100V,200mA,DO-35,	
D703	0401-000101	70795150	DIODE-SWITCHING;1N4148,100V,200mA,DO-35,	
D704	0401-000101	70795150	DIODE-SWITCHING;1N4148,100V,200mA,DO-35,	
D801	0402-000127	70796385	DIODE-RECTIFIER:1N4002,100V,1A,DO-41,TP	
D805	0401-000101	70795150	DIODE-SWITCHING;1N4148,100V,200mA,DO-35,	
LD601	0601-000517	BY430016	LED-IR:RECTANGULA,4x6.0mm,75mW,6V,950	
LD6B01	0601-000494	70796042	LED-IR:ROUND,5mm,140mW,5V,940nm,-	
LD6B02	0601-000494	70796042	LED-IR:ROUND,5mm,140mW,5V,940nm,-	
LD7C1	0601-000494	70796042	LED-IR:ROUND,5mm,140mW,5V,940nm,-	
ZD1P01	0403-000717	BY430005	DIODE-ZENER:MTZJ5.1B,5.1V,4.94-5.2V,500m	
ZD1P02	0403-000717	BY430005	DIODE-ZENER:MTZJ5.1B,5.1V,4.94-5.2V,500m	
ZD1P03	0403-000720	BY430013	DIODE-ZENER:MTZJ9.1B,9.1V,8.57-9.01V,500	
ZD1P04	0403-000720	BY430013	DIODE-ZENER:MTZJ9.1B,9.1V,8.57-9.01V,500	
ZD1SS1	0403-000571	70795438	DIODE-ZENER:UZP43B,43V,40-46V,1W,DO-41,T	
ZD401	0403-000390	70795272	DIODE-ZENER:UZP33B,33V,31.4-34.6V,1W,DO-	
ZD801	0403-000297	BY430024	DIODE-ZENER:MTZ6.2B,6.2V,5.96-6.27V,500m	
ZD807	0403-001211	BY430015	DIODE-ZENER:MTZJ12B,11.44-12.03V,500MW,D	
< INDUCTORS >				
BCM01	3301-000297	BY330019	CORE-FERRITE BEAD;AA,3.6x1.2x5.7mm,1400,	
BD1SD1	AC27-92001M	70795644	COIL-INDUCTOR:RH3.5X6.5RS,BEAD(RADIAL),-	
BD1SR1	3301-000297	BY330019	CORE-FERRITE BEAD;AA,3.6x1.2x5.7mm,1400,	
BD1SS1	AC27-92001M	70795644	COIL-INDUCTOR:RH3.5X6.5RS,BEAD(RADIAL),-	
BD1SS2	AC27-92001M	70795644	COIL-INDUCTOR:RH3.5X6.5RS,BEAD(RADIAL),-	
FL3A01	2702-000166	70795862	INDUCTOR-RADIAL;47uH,5%,6x6.4mm	
FL3D01	2702-000166	70795862	INDUCTOR-RADIAL;47uH,5%,6x6.4mm	
L1SS02	AC29-00002A	BY634272	FILTER LINE NOISE;-30mH,-,-,BLF-2116	
L1SS31	AC27-12001N	70796213	COIL-CHOKE;10uH-15%,RA,K-30,080,150KHZ,-	
L1SS32	AC27-12001N	70796213	COIL-CHOKE;10uH-15%,RA,K-30,080,150KHZ,-	
L301	2701-000002	BY330009	INDUCTOR-AXIAL;100uH,10%,4.2x9.8mm	
L302	2702-000106	70796003	INDUCTOR-RADIAL;100uH,10%,6.2x7.4mm	
L370	2702-000106	70796003	INDUCTOR-RADIAL;100uH,10%,6.2x7.4mm	
L3A01	2702-000120	70795171	INDUCTOR-RADIAL;15mH,5%,6.2x7.4mm	
L3A02	2702-000106	70796003	INDUCTOR-RADIAL;100uH,10%,6.2x7.4mm	
L3A03	2701-000002	BY330009	INDUCTOR-AXIAL;100uH,10%,4.2x9.8mm	
L3A50	2702-000119	70693395	INDUCTOR-RADIAL;150uH,5%,6x6.4mm	
L3D01	2701-000002	BY330009	INDUCTOR-AXIAL;100uH,10%,4.2x9.8mm	
L402	2702-000106	70796003	INDUCTOR-RADIAL;100uH,10%,6.2x7.4mm	
L4N01	2702-000160	BY330066	INDUCTOR-RADIAL;4.7uH,10%,6x6.4mm	
L4N02	2702-000106	70796003	INDUCTOR-RADIAL;100uH,10%,6.2x7.4mm	
L4N03	2702-000160	BY330066	INDUCTOR-RADIAL;4.7uH,10%,6x6.4mm	
L4N04	3301-000297	BY330019	CORE-FERRITE BEAD;AA,3.6x1.2x5.7mm,1400,	
L501	2701-000002	BY330009	INDUCTOR-AXIAL;100uH,10%,4.2x9.8mm	
L502	3301-000297	BY330019	CORE-FERRITE BEAD;AA,3.6x1.2x5.7mm,1400,	
L602	2701-000002	BY330009	INDUCTOR-AXIAL;100uH,10%,4.2x9.8mm	
L603	2701-000002	BY330009	INDUCTOR-AXIAL;100uH,10%,4.2x9.8mm	
L6B01	2702-000106	70796003	INDUCTOR-RADIAL;100uH,10%,6.2x7.4mm	
L6B02	2701-000002	BY330009	INDUCTOR-AXIAL;100uH,10%,4.2x9.8mm	
L6P03	2701-000160	70795162	INDUCTOR-AXIAL;22uH,5%,2.4x3.4mm	
L6P05	2701-000165	BY330052	INDUCTOR-AXIAL;27uH,5%,2.4x3.4mm	
L701	2701-000002	BY330009	INDUCTOR-AXIAL;100uH,10%,4.2x9.8mm	
L803	2701-000181	BY330053	INDUCTOR-AXIAL;33uH,5%,2.4x3.4mm	

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## Replacement Parts List

Loc.No.	TSB Parts No.	Reference No.	Description ; Specification	Remark
L804	2701-000181	BY330053	INDUCTOR-AXIAL;33uH,5%,2.4x3.4mm	
L805	2701-000181	BY330053	INDUCTOR-AXIAL;33uH,5%,2.4x3.4mm	
L806	2701-000181	BY330053	INDUCTOR-AXIAL;33uH,5%,2.4x3.4mm	
L807	2701-000181	BY330053	INDUCTOR-AXIAL;33uH,5%,2.4x3.4mm	
L808	2701-000181	BY330053	INDUCTOR-AXIAL;33uH,5%,2.4x3.4mm	
L809	2701-000181	BY330053	INDUCTOR-AXIAL;33uH,5%,2.4x3.4mm	
L810	2701-000181	BY330053	INDUCTOR-AXIAL;33uH,5%,2.4x3.4mm	
L811	2701-000181	BY330053	INDUCTOR-AXIAL;33uH,5%,2.4x3.4mm	
L812	2701-000181	BY330053	INDUCTOR-AXIAL;33uH,5%,2.4x3.4mm	
L814	AC27-92001M	70795644	COIL-INDUCTOR;RH3.5X6.5RS,BEAD(RADIAL),-	

## &lt; CAPACITORS &gt;

C1P102	2401-002095	BY130048	C-AL;47uF,20%,25V,GP,TP,6.3x5,5
C1P103	2401-000598	BY130042	C-AL;1uF,20%,50V,GP,TP,4x7,5
C1P104	2401-002299	BY130136	C-AL;4.7uF,20%,50V,GP,TP,5x7,5
C1P105	2401-002095	BY130048	C-AL;47uF,20%,25V,GP,TP,6.3x5,5
C1P106	2401-002095	BY130048	C-AL;47uF,20%,25V,GP,TP,6.3x5,5
C1P108	2401-002299	BY130136	C-AL;4.7uF,20%,50V,GP,TP,5x7,5
C1P109	2401-000598	BY130042	C-AL;1uF,20%,50V,GP,TP,4x7,5
C1P120	2401-002095	BY130048	C-AL;47uF,20%,25V,GP,TP,6.3x5,5
C1SD03	2201-000812	BY130216	C-CERAMIC,DISC;2.2nF,20%,400V,Y5U,BK,12.
C1SD04	2201-000812	BY130216	C-CERAMIC,DISC;2.2nF,20%,400V,Y5U,BK,12.
C1SD11	2401-003302	BY130283	C-AL;47uF,20%,400V,GP,TP,18X31.5,7.
C1SD12	2305-001029	BY130226	C-FILM,MPEF;10nF,10%,630V,TP,12x9x12.5,5
C1SD13	2301-000361	70795095	C-FILM,PEF;1.2nF,10%,50V,TP,-,5mm
C1SR12	2401-000905	70795430	C-AL;22uF,20%,16V,BP,-,6x11,2.5mm
C1SR14	2301-000445	70699067	C-FILM,PEF;4.7nF,5%,50V,TP,5.5x7x3mm,5mm
C1SS01	2305-001021	BY130272	C-FILM,MPEF;100nF,20%,275V,TP,17.5x7x13.
C1SS02	2305-001021	BY130272	C-FILM,MPEF;100nF,20%,275V,TP,17.5x7x13.
C1SS12	2201-000129	BY130258	C-CERAMIC,DISC;0.1nF,10%,1kV,Y5P,TP,7x4,
C1SS13	2201-000129	BY130258	C-CERAMIC,DISC;0.1nF,10%,1kV,Y5P,TP,7x4,
C1SS31	2401-000385	70795431	C-AL;10uF,20%,100V,GP,TP,6.3x11,5
C1SS32	2401-003137	BY130187	C-AL;330UF,20%,50V,WT,TP,10X16MM,5
C1SS33	2401-003477	BY130248	C-AL;330UF,20%,25V,LZ,TP,10X12.5MM,
C1SS34	2401-003477	BY130248	C-AL;330UF,20%,25V,LZ,TP,10X12.5MM,
C1SS35	2401-003480	BY130339	C-AL;1000UF,20%,10V,LZ,TP,10X16MM,5
C1SS36	2401-000118	70796210	C-AL;1000uF,20%,10V,GP,TP,10x12.5,5
C1SS39	2301-000129	70796098	C-FILM,PEF;100nF,5%,50V,TP,10X9X4.3X5,5m
C315	2203-000989	BY130293	C-CERAMIC,CHIP;47nF,10%,50V,X7R,TP,2012
C317	2401-000598	BY130042	C-AL;1uF,20%,50V,GP,TP,4x7,5
C318	2401-000598	BY130042	C-AL;1uF,20%,50V,GP,TP,4x7,5
C319	2203-000844	BY130207	C-CERAMIC,CHIP;39nF,10%,50V,X7R,TP,2012,
C320	2202-000854	BY130021	C-CERAMIC,MLC-AXIAL;47nF,30%,50V,Y5R,TP,
C321	2202-000807	70693249	C-CERAMIC,MLC-AXIAL;22nF,+80-20%,25V,Y5V
C322	2401-000598	BY130042	C-AL;1uF,20%,50V,GP,TP,4x7,5
C324	2203-000260	70796281	C-CERAMIC,CHIP;10nF,10%,50V,X7R,TP,2012
C325	2401-002095	BY130048	C-AL;47uF,20%,25V,GP,TP,6.3x5,5
C326	2401-000598	BY130042	C-AL;1uF,20%,50V,GP,TP,4x7,5
C327	2202-000720	BY130432	C-CERAMIC,MLC-AXIAL;8.2nF,20%,16V,Y5R,TP
C328	2203-000260	70796281	C-CERAMIC,CHIP;10nF,10%,50V,X7R,TP,2012
C329	2203-000206	BY130352	C-CERAMIC,CHIP;100nF,10%,50V,X7R,TP,2012
C330	2203-000989	BY130293	C-CERAMIC,CHIP;47nF,10%,50V,X7R,TP,2012
C331	2203-000206	BY130352	C-CERAMIC,CHIP;100nF,10%,50V,X7R,TP,2012
C332	2202-000854	BY130021	C-CERAMIC,MLC-AXIAL;47nF,30%,50V,Y5R,TP,
C333	2401-000414	BY130273	C-AL;10uF,20%,16V,GP,TP,4x7,5
C334	2203-000989	BY130293	C-CERAMIC,CHIP;47nF,10%,50V,X7R,TP,2012
C335	2203-000925	BY130030	C-CERAMIC,CHIP;470NF,+80-20%,50V,Y5V,TP,
C336	2202-000854	BY130021	C-CERAMIC,MLC-AXIAL;47nF,30%,50V,Y5R,TP,
C337	2203-000925	BY130030	C-CERAMIC,CHIP;470NF,+80-20%,50V,Y5V,TP,
C338	2202-000807	70693249	C-CERAMIC,MLC-AXIAL;22nF,+80-20%,25V,Y5V
C339	2401-000414	BY130273	C-AL;10uF,20%,16V,GP,TP,4x7,5
C340	2401-001226	BY130016	C-AL;4.7uF,20%,16V,BP,TP,4x7,5mm
C341	2401-002095	BY130048	C-AL;47uF,20%,25V,GP,TP,6.3x5,5
C342	2202-002037	BY130027	C-CERAMIC,MLC-AXIAL;100nF,80-20%,50V,Y5V
C343	2203-000476	BY130191	C-CERAMIC,CHIP;1000nF,+80-20%,16V,Y5V,TP
C344	2203-000321	BY130433	C-CERAMIC,CHIP;0.12nF,5%,50V,SL,TP,2012
C345	2203-000595	72531473	C-CERAMIC,CHIP;0.22nF,5%,50V,NP0,TP,2012
C346	2203-000260	70796281	C-CERAMIC,CHIP;10nF,10%,50V,X7R,TP,2012
C347	2203-000476	BY130191	C-CERAMIC,CHIP;1000nF,+80-20%,16V,Y5V,TP
C348	2203-000206	BY130352	C-CERAMIC,CHIP;100nF,10%,50V,X7R,TP,2012
C349	2203-000476	BY130191	C-CERAMIC,CHIP;1000nF,+80-20%,16V,Y5V,TP
C350	2203-000206	BY130352	C-CERAMIC,CHIP;100nF,10%,50V,X7R,TP,2012
C351	2401-002095	BY130048	C-AL;47uF,20%,25V,GP,TP,6.3x5,5
C352	2401-000598	BY130042	C-AL;1uF,20%,50V,GP,TP,4x7,5
C353	2401-000598	BY130042	C-AL;1uF,20%,50V,GP,TP,4x7,5
C354	2401-002095	BY130048	C-AL;47uF,20%,25V,GP,TP,6.3x5,5
C355	2202-000854	BY130021	C-CERAMIC,MLC-AXIAL;47nF,30%,50V,Y5R,TP,
C356	2203-000239	70795969	C-CERAMIC,CHIP;0.1nF,5%,50V,NP0,TP,2012





Loc.No.	TSB Parts No.	Reference No.	Description ; Specification	Remark
C371	2203-000260	70796281	C-CERAMIC,CHIP:10nF,10%,50V,X7R,TP,2012	
C372	2203-000206	BY130352	C-CERAMIC,CHIP:100nF,10%,50V,X7R,TP,2012	
C380	2202-000807	70693249	C-CERAMIC,MLC-AXIAL:22nF,+80-20%,25V,Y5V	
C384	2203-000206	BY130352	C-CERAMIC,CHIP:100nF,10%,50V,X7R,TP,2012	
C385	2401-002165	BY130280	C-AL:100uF,20%,16V,GP,TP,6.3x7,5	
C3A01	2401-003122	70795626	C-AL:4.7uF,20%,50V,LL,TP,4X7,1.5	
C3A02	2401-000922	BY130044	C-AL:22uF,20%,16V,GP,TP,5x5,5	
C3A08	2203-000260	70796281	C-CERAMIC,CHIP:10nF,10%,50V,X7R,TP,2012	
C3A09	2203-001105	70796337	C-CERAMIC,CHIP:6.8nF,10%,50V,X7R,TP,2012	
C3A10	2203-001214	70796409	C-CERAMIC,CHIP:8.2nF,10%,50V,X7R,TP,2012	
C3A11	2301-000180	BY130204	C-FILM,PEF;18nF,0.05,100V,TP,7.2x4.5x8.0	
C3A12	2401-002095	BY130048	C-AL:47uF,20%,25V,GP,TP,6.3x5,5	
C3A14	2203-000938	70795976	C-CERAMIC,CHIP:0.47nF,5%,50V,NP0,TP,2012	
C3A15	2203-000260	70796281	C-CERAMIC,CHIP:10nF,10%,50V,X7R,TP,2012	
C3A16	2401-003122	70795626	C-AL:4.7uF,20%,50V,LL,TP,4X7,1.5	
C3A17	2401-000414	BY130273	C-AL:10uF,20%,16V,GP,TP,4x7,5	
C3A18	2203-001223	BY130434	C-CERAMIC,CHIP:0.82nF,10%,50V,X7R,TP,201	
C3A21	2203-000170	BY130147	C-CERAMIC,CHIP:1.8nF,10%,50V,X7R,TP,2012	
C3A22	2203-000206	BY130352	C-CERAMIC,CHIP:100nF,10%,50V,X7R,TP,2012	
C3A23	2401-002069	BY130245	C-AL:33uF,20%,16V,GP,TP,6.3x5,5	
C3A24	2203-000206	BY130352	C-CERAMIC,CHIP:100nF,10%,50V,X7R,TP,2012	
C3A29	2203-000206	BY130352	C-CERAMIC,CHIP:100nF,10%,50V,X7R,TP,2012	
C3A30	2401-002095	BY130048	C-AL:47uF,20%,25V,GP,TP,6.3x5,5	
C3A40	2401-000414	BY130273	C-AL:10uF,20%,16V,GP,TP,4x7,5	
C3A41	2401-000598	BY130042	C-AL:1uF,20%,50V,GP,TP,4x7,5	
C3AXX	2401-003107	BY130282	C-AL:47uF,20%,16V,GP,TP,5x7,5	
C3D01	2301-000224	BY130082	C-FILM,PEF;22nF,5%,50V,TP,7.4x3.9x13mm,5	
C3D02	2401-003107	BY130282	C-AL:47uF,20%,16V,GP,TP,5x7,5	
C3D03	2401-003107	BY130282	C-AL:47uF,20%,16V,GP,TP,5x7,5	
C3D04	2203-000938	70795976	C-CERAMIC,CHIP:0.47nF,5%,50V,NP0,TP,2012	
C401	2401-001479	BY130015	C-AL:470uF,20%,10V,GP,TP,-,-	
C402	2203-000609	70795974	C-CERAMIC,CHIP:22nF,10%,50V,X7R,TP,2012	
C403	2401-003107	BY130282	C-AL:47uF,20%,16V,GP,TP,5x7,5	
C404	2401-001077	BY130431	C-AL:330nF,20%,50V,GP,TP,4x7mm,5mm	
C405	2401-003046	BY130281	C-AL:47uF,20%,50V,WVT,TP,6.3x11,2.5	
C406	2202-000797	70795075	C-CERAMIC,MLC-AXIAL:10NF,30%,16V,Y5S,TP,	
C407	2401-003107	BY130282	C-AL:47uF,20%,16V,GP,TP,5x7,5	
C408	2203-000260	70796281	C-CERAMIC,CHIP:10nF,10%,50V,X7R,TP,2012	
C410	2203-000260	70796281	C-CERAMIC,CHIP:10nF,10%,50V,X7R,TP,2012	
C4N01	2203-000142	BY130351	C-CERAMIC,CHIP:1.5nF,10%,50V,X7R,TP,2012	
C4N02	2401-000414	BY130273	C-AL:10uF,20%,16V,GP,TP,4x7,5	
C4N03	2203-000595	72531473	C-CERAMIC,CHIP:0.22nF,5%,50V,NP0,TP,2012	
C4N04	2401-000665	BY130424	C-AL:2.2uF,20%,50V,GP,TP,3.5x5,5	
C4N05	2203-000260	70796281	C-CERAMIC,CHIP:10nF,10%,50V,X7R,TP,2012	
C4N06	2203-000260	70796281	C-CERAMIC,CHIP:10nF,10%,50V,X7R,TP,2012	
C4N07	2203-000938	70795976	C-CERAMIC,CHIP:0.47nF,5%,50V,NP0,TP,2012	
C4N08	2203-000142	BY130351	C-CERAMIC,CHIP:1.5nF,10%,50V,X7R,TP,2012	
C4N09	2401-000414	BY130273	C-AL:10uF,20%,16V,GP,TP,4x7,5	
C4N10	2401-000414	BY130273	C-AL:10uF,20%,16V,GP,TP,4x7,5	
C4N11	2401-001020	BY130159	C-AL:3.3uF,20%,50V,GP,TP,4X7,5	
C4N12	2203-000206	BY130352	C-CERAMIC,CHIP:100nF,10%,50V,X7R,TP,2012	
C4N13	2203-000206	BY130352	C-CERAMIC,CHIP:100nF,10%,50V,X7R,TP,2012	
C4N14	2401-000414	BY130273	C-AL:10uF,20%,16V,GP,TP,4x7,5	
C4N15	2203-000206	BY130352	C-CERAMIC,CHIP:100nF,10%,50V,X7R,TP,2012	
C4N16	2401-003107	BY130282	C-AL:47uF,20%,16V,GP,TP,5x7,5	
C4N17	2203-000938	70795976	C-CERAMIC,CHIP:0.47nF,5%,50V,NP0,TP,2012	
C4N18	2203-000938	70795976	C-CERAMIC,CHIP:0.47nF,5%,50V,NP0,TP,2012	
C4N19	2202-000279	70693047	C-CERAMIC,MLC-AXIAL:47pF,5%,50V,SL,TP,3.	
C4N21	2201-002069	BY130261	C-CERAMIC,DISC:1.5pF,0.25pF,50V,NP0,TP,4	
C4N22	2201-002069	BY130261	C-CERAMIC,DISC:1.5pF,0.25pF,50V,NP0,TP,4	
C4N23	2401-000598	BY130042	C-AL:1uF,20%,50V,GP,TP,4x7,5	
C4N24	2401-000598	BY130042	C-AL:1uF,20%,50V,GP,TP,4x7,5	
C4N25	2202-002037	BY130027	C-CERAMIC,MLC-AXIAL:100nF,80-20%,50V,Y5V	
C4N30	2202-000797	70795075	C-CERAMIC,MLC-AXIAL:10NF,30%,16V,Y5S,TP,	
C501	2401-000414	BY130273	C-AL:10uF,20%,16V,GP,TP,4x7,5	
C502	2203-000206	BY130352	C-CERAMIC,CHIP:100nF,10%,50V,X7R,TP,2012	
C503	2401-000922	BY130044	C-AL:22uF,20%,16V,GP,TP,5x5,5	
C504	2401-000414	BY130273	C-AL:10uF,20%,16V,GP,TP,4x7,5	
C505	2401-002299	BY130136	C-AL:4.7uF,20%,50V,GP,TP,5x7,5	
C506	2203-000260	70796281	C-CERAMIC,CHIP:10nF,10%,50V,X7R,TP,2012	
C507	2401-000922	BY130044	C-AL:22uF,20%,16V,GP,TP,5x5,5	
C508	2203-000891	BY130174	C-CERAMIC,CHIP:4.7nF,10%,50V,X7R,TP,2012	
C510	2401-002095	BY130048	C-AL:47uF,20%,25V,GP,TP,6.3x5,5	
C511	2203-000260	70796281	C-CERAMIC,CHIP:10nF,10%,50V,X7R,TP,2012	
C513	2203-000260	70796281	C-CERAMIC,CHIP:10nF,10%,50V,X7R,TP,2012	
C517	2203-000891	BY130174	C-CERAMIC,CHIP:4.7nF,10%,50V,X7R,TP,2012	
C518	2401-000922	BY130044	C-AL:22uF,20%,16V,GP,TP,5x5,5	
C519	2203-000260	70796281	C-CERAMIC,CHIP:10nF,10%,50V,X7R,TP,2012	
C520	2401-002299	BY130136	C-AL:4.7uF,20%,50V,GP,TP,5x7,5	

## Replacement Parts List

Loc.No.	TSB Parts No.	Reference No.	Description ; Specification	Remark
C521	2401-000414	BY130273	C-AL;10uF,20%,16V,GP,TP,4x7,5	
C522	2203-000206	BY130352	C-CERAMIC,CHIP;100nF,10%,50V,X7R,TP,2012	
C523	2203-000206	BY130352	C-CERAMIC,CHIP;100nF,10%,50V,X7R,TP,2012	
C524	2401-002299	BY130136	C-AL;4.7uF,20%,50V,GP,TP,5x7,5	
C525	2401-002299	BY130136	C-AL;4.7uF,20%,50V,GP,TP,5x7,5	
C526	2401-002165	BY130280	C-AL;100uF,20%,16V,GP,TP,6.3x7,5	
C527	2202-000797	70795075	C-CERAMIC,MLC-AXIAL;10NF,30%,16V,Y5S,TP,	
C529	2401-002299	BY130136	C-AL;4.7uF,20%,50V,GP,TP,5x7,5	
C530	2203-000206	BY130352	C-CERAMIC,CHIP;100nF,10%,50V,X7R,TP,2012	
C535	2203-000206	BY130352	C-CERAMIC,CHIP;100nF,10%,50V,X7R,TP,2012	
C536	2203-000206	BY130352	C-CERAMIC,CHIP;100nF,10%,50V,X7R,TP,2012	
C537	2401-000665	BY130424	C-AL;2.2uF,20%,50V,GP,TP,3.5x5,5	
C538	2401-000665	BY130424	C-AL;2.2uF,20%,50V,GP,TP,3.5x5,5	
C539	2401-002299	BY130136	C-AL;4.7uF,20%,50V,GP,TP,5x7,5	
C540	2401-002299	BY130136	C-AL;4.7uF,20%,50V,GP,TP,5x7,5	
C541	2401-000598	BY130042	C-AL;1uF,20%,50V,GP,TP,4x7,5	
C542	2401-002165	BY130280	C-AL;100uF,20%,16V,GP,TP,6.3x7,5	
C601	2401-002095	BY130048	C-AL;47uF,20%,25V,GP,TP,6.3x5,5	
C602	2203-000609	70795974	C-CERAMIC,CHIP;22nF,10%,50V,X7R,TP,2012	
C605	2203-000260	70796281	C-CERAMIC,CHIP;10nF,10%,50V,X7R,TP,2012	
C609	2203-000609	70795974	C-CERAMIC,CHIP;22nF,10%,50V,X7R,TP,2012	
C618	2401-000360	BY130317	C-AL;100uF,20%,50V,GP,TP,8x11.5,5	
C620	2203-000260	70796281	C-CERAMIC,CHIP;10nF,10%,50V,X7R,TP,2012	
C622	2203-001137	BY130373	C-CERAMIC,CHIP;68nF,+80-20%,50V,Y5V,TP,2	
C623	2203-000260	70796281	C-CERAMIC,CHIP;10nF,10%,50V,X7R,TP,2012	
C626	2203-000634	BY130152	C-CERAMIC,CHIP;0.022nF,5%,50V,NP0,TP,201	
C627	2203-000634	BY130152	C-CERAMIC,CHIP;0.022nF,5%,50V,NP0,TP,201	
C633	2203-000260	70796281	C-CERAMIC,CHIP;10nF,10%,50V,X7R,TP,2012	
C634	2203-000260	70796281	C-CERAMIC,CHIP;10nF,10%,50V,X7R,TP,2012	
C635	2203-000495	BY130166	C-CERAMIC,CHIP;2.2nF,10%,50V,X7R,TP,2012	
C636	2203-000495	BY130166	C-CERAMIC,CHIP;2.2nF,10%,50V,X7R,TP,2012	
C637	2203-000938	70795976	C-CERAMIC,CHIP;0.47nF,5%,50V,NP0,TP,2012	
C638	2401-002196	70796152	C-AL;4.7UF,20,25V,GP,TP,4X5,5MM,-	
C639	2203-000239	70795969	C-CERAMIC,CHIP;0.1nF,5%,50V,NP0,TP,2012	
C640	2401-002095	BY130048	C-AL;47uF,20%,25V,GP,TP,6.3x5,5	
C641	2401-002165	BY130280	C-AL;100uF,20%,16V,GP,TP,6.3x7,5	
C642	2203-000206	BY130352	C-CERAMIC,CHIP;100nF,10%,50V,X7R,TP,2012	
C644	2202-000806	70693317	C-CERAMIC,MLC-AXIAL;220pF,10%,50V,Y5P,TP	
C646	2202-002037	BY130027	C-CERAMIC,MLC-AXIAL;100nF,80-20%,50V,Y5V	
C650	2203-000495	BY130166	C-CERAMIC,CHIP;2.2nF,10%,50V,X7R,TP,2012	
C651	2203-000609	70795974	C-CERAMIC,CHIP;22nF,10%,50V,X7R,TP,2012	
C652	2401-002165	BY130280	C-AL;100uF,20%,16V,GP,TP,6.3x7,5	
C655	2202-000791	70795363	C-CERAMIC,MLC-AXIAL;150pF,10%,50V,Y5P,TP	
C679	2203-000609	70795974	C-CERAMIC,CHIP;22nF,10%,50V,X7R,TP,2012	
C680	2401-000118	70796210	C-AL;1000uF,20%,10V,GP,TP,10x12.5,5	
C681	2401-002165	BY130280	C-AL;100uF,20%,16V,GP,TP,6.3x7,5	
C690	2203-000989	BY130293	C-CERAMIC,CHIP;47nF,10%,50V,X7R,TP,2012	
C691	2203-000260	70796281	C-CERAMIC,CHIP;10nF,10%,50V,X7R,TP,2012	
C692	2401-002095	BY130048	C-AL;47uF,20%,25V,GP,TP,6.3x5,5	
C693	2401-001992	70796291	C-AL;2200UF,20%,10V,WT,TP,10X20MM,5	
C695	2203-000361	BY130151	C-CERAMIC,CHIP;0.15nF,5%,50V,NP0,TP,2012	
C697	2203-000609	70795974	C-CERAMIC,CHIP;22nF,10%,50V,X7R,TP,2012	
C698	2203-000802	BY130144	C-CERAMIC,CHIP;33nF,10%,50V,X7R,TP,2012	
C6B02	2202-000173	BY130262	C-CERAMIC,MLC-AXIAL;1nF,10%,50V,Y5P,TP,1	
C6B03	2401-003046	BY130281	C-AL;47uF,20%,50V,WT,TP,6.3x11,2.5	
C6B04	2202-000797	70795075	C-CERAMIC,MLC-AXIAL;10NF,30%,16V,Y5S,TP,	
C6B05	2202-000797	70795075	C-CERAMIC,MLC-AXIAL;10NF,30%,16V,Y5S,TP,	
C6B09	2401-002165	BY130280	C-AL;100uF,20%,16V,GP,TP,6.3x7,5	
C6P01	2203-000260	70796281	C-CERAMIC,CHIP;10nF,10%,50V,X7R,TP,2012	
C6P04	2203-000683	BY130154	C-CERAMIC,CHIP;0.027nF,5%,50V,NP0,TP,201	
C6P05	2203-000683	BY130154	C-CERAMIC,CHIP;0.027nF,5%,50V,NP0,TP,201	
C6P06	2203-000444	BY130167	C-CERAMIC,CHIP;1nF,10%,50V,X7R,TP,2012,-	
C6P07	2401-002299	BY130136	C-AL;4.7uF,20%,50V,GP,TP,5x7,5	
C6P08	2202-000286	BY130173	C-CERAMIC,MLC-AXIAL;56pF,5%,50V,SL,TP,1.	
C6P10	2401-000598	BY130042	C-AL;1uF,20%,50V,GP,TP,4x7,5	
C6P11	2401-000598	BY130042	C-AL;1uF,20%,50V,GP,TP,4x7,5	
C6P12	2401-003107	BY130282	C-AL;47uF,20%,16V,GP,TP,5x7,5	
C6P13	2203-000206	BY130352	C-CERAMIC,CHIP;100nF,10%,50V,X7R,TP,2012	
C701	2401-001479	BY130015	C-AL;470uF,20%,10V,GP,TP,-,-	
C702	2203-000260	70796281	C-CERAMIC,CHIP;10nF,10%,50V,X7R,TP,2012	
C703	2203-000444	BY130167	C-CERAMIC,CHIP;1nF,10%,50V,X7R,TP,2012,-	
C750	2203-000335	BY130353	C-CERAMIC,CHIP;0.012nF,5%,50V,NP0,TP,201	
C751	2203-000335	BY130353	C-CERAMIC,CHIP;0.012nF,5%,50V,NP0,TP,201	
C752	2203-000260	70796281	C-CERAMIC,CHIP;10nF,10%,50V,X7R,TP,2012	
C806	2203-000239	70795969	C-CERAMIC,CHIP;0.1nF,5%,50V,NP0,TP,2012	
C811	2203-000784	BY130344	C-CERAMIC,CHIP;0.33nF,5%,50V,NP0,TP,2012	
C822	2203-000239	70795969	C-CERAMIC,CHIP;0.1nF,5%,50V,NP0,TP,2012	
C826	2203-000239	70795969	C-CERAMIC,CHIP;0.1nF,5%,50V,NP0,TP,2012	
C834	2203-000784	BY130344	C-CERAMIC,CHIP;0.33nF,5%,50V,NP0,TP,2012	

Loc.No.	TSB Parts No.	Reference No.	Description ; Specification	Remark
C837	2203-000784	BY130344	C-CERAMIC,CHIP:0.33nF,5%,50V,NP0,TP,2012	
C838	2203-000784	BY130344	C-CERAMIC,CHIP:0.33nF,5%,50V,NP0,TP,2012	
C841	2203-000239	70795969	C-CERAMIC,CHIP:0.1nF,5%,50V,NP0,TP,2012	
C842	2203-000784	BY130344	C-CERAMIC,CHIP:0.33nF,5%,50V,NP0,TP,2012	
C843	2203-000784	BY130344	C-CERAMIC,CHIP:0.33nF,5%,50V,NP0,TP,2012	
C844	2203-000784	BY130344	C-CERAMIC,CHIP:0.33nF,5%,50V,NP0,TP,2012	
C845	2203-000784	BY130344	C-CERAMIC,CHIP:0.33nF,5%,50V,NP0,TP,2012	
CM27	2202-000173	BY130262	C-CERAMIC,MLC-AXIAL:1nF,10%,50V,Y5P,TP,1	
CM28	2401-000918	70699092	C-AL:22uF,20%,16V,GP,-,6.3x7.5	
CM29	2401-001085	70795123	C-AL:330nF,20%,50V,GP,-,5x9.2mm	
CM30	2202-000791	70795363	C-CERAMIC,MLC-AXIAL:150pF,10%,50V,Y5P,TP	
CM31	2202-000791	70795363	C-CERAMIC,MLC-AXIAL:150pF,10%,50V,Y5P,TP	
CM701	2202-000173	BY130262	C-CERAMIC,MLC-AXIAL:1nF,10%,50V,Y5P,TP,1	
CM702	2202-000173	BY130262	C-CERAMIC,MLC-AXIAL:1nF,10%,50V,Y5P,TP,1	

## &lt; RESISTORS &gt;

FC1SS1	3602-000103	BY634083	FUSE-CLIP:-,-,10mohm
FC1SS2	3602-000103	BY634083	FUSE-CLIP:-,-,10mohm
J301	2007-000029	70795513	R-CHIP:00HM,5%,1/10W,DA,TP,2012
J302	2007-000029	70795513	R-CHIP:00HM,5%,1/10W,DA,TP,2012
J303	2007-000029	70795513	R-CHIP:00HM,5%,1/10W,DA,TP,2012
R1P101	2001-000855	BY230025	R-CARBON:560OHM,5%,1/4W,AA,TP,2.4X6.4MM
R1P102	2007-000872	70795589	R-CHIP:4.7KOHM,5%,1/10W,DA,TP,2012
R1P103	2001-000515	70795019	R-CARBON:220OHM,5%,1/8W,AA,TP,1.8X3.2MM
R1P104	2007-000290	70795683	R-CHIP:100OHM,5%,1/10W,DA,TP,2012
R1P105	2007-000300	70795516	R-CHIP:10KOHM,5%,1/10W,DA,TP,2012
R1P106	2001-000449	70795020	R-CARBON:2.2KOHM,5%,1/8W,AA,TP,1.8X3.2M
R1P107	2007-000282	70795684	R-CHIP:100KOHM,5%,1/10W,DA,TP,2012
R1P108	2001-000611	BY230024	R-CARBON:3.9KOHM,5%,1/4W,AA,TP,2.4X6.4M
R1P109	2001-000449	70795020	R-CARBON:2.2KOHM,5%,1/8W,AA,TP,1.8X3.2M
R1P110	2007-000290	70795683	R-CHIP:100OHM,5%,1/10W,DA,TP,2012
R1P115	2001-000554	70795025	R-CARBON:270OHM,5%,1/8W,AA,TP,1.8X3.2MM
R1SD11	2001-000305	70795604	R-CARBON:110KOHM,5%,1/8W,AA,TP,1.8X3.2M
R1SD12	2001-000003	70795030	R-CARBON:330ohm,5%,1/8W,AA,TP,1.8x3.2mm
R1SD13	2001-000305	70795604	R-CARBON:110KOHM,5%,1/8W,AA,TP,1.8X3.2M
R1SD14	2001-000305	70795604	R-CARBON:110KOHM,5%,1/8W,AA,TP,1.8X3.2M
R1SD15	2001-000305	70795604	R-CARBON:110KOHM,5%,1/8W,AA,TP,1.8X3.2M
R1SD16	2003-000994	BY230027	R-METAL OXIDE(S):33Kohm,5%,2W,AF,TP,3.9x
R1SD31	2001-000515	70795019	R-CARBON:220OHM,5%,1/8W,AA,TP,1.8X3.2MM
R1SD32	2001-000221	BY230019	R-CARBON:1.2KOHM,5%,1/8W,AA,TP,1.8X3.2M
R1SR11	2003-000119	70796275	R-METAL OXIDE:0.68ohm,5%,2W,AE,TP,6x16mm
R1SR12	2003-000264	BY230249	R-METAL OXIDE:300ohm,5%,1W,AD,TP,4.3x12m
R1SR14	2001-000003	70795030	R-CARBON:330ohm,5%,1/8W,AA,TP,1.8x3.2mm
R1SS10	2006-000262	BY230170	R-CEMENT:2.7ohm,10%,2W,CB,TP,7.5x11x20.
R1SS11	2003-000994	BY230027	R-METAL OXIDE(S):33Kohm,5%,2W,AF,TP,3.9x
R1SS32	2007-000468	70795515	R-CHIP:1KOHM,5%,1/10W,DA,TP,2012
R1SS33	2004-000869	70795640	R-METAL:3Kohm,1%,1/8W,AA,TP,1.8x3.2mm
R1SS34	2004-000459	70795638	R-METAL:2.2Kohm,1%,1/8W,AA,TP,1.8x3.2m
R315	2007-000221	70795519	R-CHIP:1.2KOHM,5%,1/10W,DA,TP,2012
R316	2007-001177	70795546	R-CHIP:8.2KOHM,5%,1/10W,DA,TP,2012
R320	2001-000411	70795016	R-CARBON:18KOHM,5%,1/8W,AA,TP,1.8X3.2MM
R321	2001-000290	70795006	R-CARBON:10KOHM,5%,1/8W,AA,TP,1.8X3.2MM
R322	2001-000411	70795016	R-CARBON:18KOHM,5%,1/8W,AA,TP,1.8X3.2MM
R323	2007-000710	70795535	R-CHIP:3.9KOHM,5%,1/10W,DA,TP,2012
R325	2001-000281	70795004	R-CARBON:100OHM,5%,1/8W,AA,TP,1.8X3.2MM
R326	2001-000281	70795004	R-CARBON:100OHM,5%,1/8W,AA,TP,1.8X3.2MM
R327	2007-000872	70795589	R-CHIP:4.7KOHM,5%,1/10W,DA,TP,2012
R328	2007-000221	70795519	R-CHIP:1.2KOHM,5%,1/10W,DA,TP,2012
R329	2007-000518	70795529	R-CHIP:2.7KOHM,5%,1/10W,DA,TP,2012
R330	2007-001071	70795542	R-CHIP:6.8KOHM,5%,1/10W,DA,TP,2012
R331	2007-000267	70795523	R-CHIP:1.8KOHM,5%,1/10W,DA,TP,2012
R333	2007-001039	70795708	R-CHIP:56KOHM,5%,1/10W,DA,TP,2012
R334	2007-000241	70795520	R-CHIP:1.5KOHM,5%,1/10W,DA,TP,2012
R335	2001-000281	70795004	R-CARBON:100OHM,5%,1/8W,AA,TP,1.8X3.2MM
R336	2007-001166	BY230097	R-CHIP:75OHM,5%,1/10W,DA,TP,2012
R360	2007-000068	BY230092	R-CHIP:470KOHM,5%,1/10W,DA,TP,2012
R370	2001-000857	70795358	R-CARBON:560OHM,5%,1/8W,AA,TP,1.8X3.2MM
R371	2001-000857	70795358	R-CARBON:560OHM,5%,1/8W,AA,TP,1.8X3.2MM
R372	2007-000468	70795515	R-CHIP:1KOHM,5%,1/10W,DA,TP,2012
R373	2007-000409	70795521	R-CHIP:15KOHM,5%,1/10W,DA,TP,2012
R374	2007-000290	70795683	R-CHIP:100OHM,5%,1/10W,DA,TP,2012
R3A01	2001-000290	70795006	R-CARBON:10KOHM,5%,1/8W,AA,TP,1.8X3.2MM
R3A04	2007-000221	70795519	R-CHIP:1.2KOHM,5%,1/10W,DA,TP,2012
R3A05	2007-000615	BY230093	R-CHIP:24KOHM,5%,1/10W,DA,TP,2012
R3A06	2007-000449	70795522	R-CHIP:180OHM,5%,1/10W,DA,TP,2012
R3A07	2007-000757	BY230094	R-CHIP:330KOHM,5%,1/10W,DA,TP,2012
R3A08	2007-000355	70795686	R-CHIP:12KOHM,5%,1/10W,DA,TP,2012
R3A09	2007-000029	70795513	R-CHIP:00HM,5%,1/10W,DA,TP,2012

## Replacement Parts List

Loc.No.	TSB Parts No.	Reference No.	Description ; Specification	Remark
R3A11	2007-000493	70795526	R-CHIP;2.2KOHM,5%,1/10W,DA,TP,2012	
R3A12	2007-000290	70795683	R-CHIP;100OHM,5%,1/10W,DA,TP,2012	
R3A13	2007-000586	70795527	R-CHIP;22KOHM,5%,1/10W,DA,TP,2012	
R3A14	2001-000522	70795021	R-CARBON;22KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R3A16	2007-000300	70795516	R-CHIP;10KOHM,5%,1/10W,DA,TP,2012	
R3A17	2007-000493	70795526	R-CHIP;2.2KOHM,5%,1/10W,DA,TP,2012	
R3A18	2007-000493	70795526	R-CHIP;2.2KOHM,5%,1/10W,DA,TP,2012	
R3A23	2001-000331	70795011	R-CARBON;12KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R3A24	2007-000586	70795527	R-CHIP;22KOHM,5%,1/10W,DA,TP,2012	
R3A25	2007-000221	70795519	R-CHIP;1.2KOHM,5%,1/10W,DA,TP,2012	
R3A26	2001-000290	70795006	R-CARBON;10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R3A28	2007-000267	70795523	R-CHIP;1.8KOHM,5%,1/10W,DA,TP,2012	
R3A31	2007-000029	70795513	R-CHIP;0OHM,5%,1/10W,DA,TP,2012	
R3A50	2007-000964	BY230007	R-CHIP;5.1KOHM,5%,1/10W,DA,TP,2012	
R3A51	2007-000300	70795516	R-CHIP;10KOHM,5%,1/10W,DA,TP,2012	
R3A60	2001-000605	70795609	R-CARBON;3.6KOHM,5%,1/8W,AA,TP,1.8X3.2M	
R3D01	2007-000941	70795705	R-CHIP;47KOHM,5%,1/10W,DA,TP,2012	
R3D02	2007-000872	70795589	R-CHIP;4.7KOHM,5%,1/10W,DA,TP,2012	
R3D03	2007-000586	70795527	R-CHIP;22KOHM,5%,1/10W,DA,TP,2012	
R3D04	2001-000290	70795006	R-CARBON;10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R401	2007-000941	70795705	R-CHIP;47KOHM,5%,1/10W,DA,TP,2012	
R402	2007-000290	70795683	R-CHIP;100OHM,5%,1/10W,DA,TP,2012	
R403	2007-000290	70795683	R-CHIP;100OHM,5%,1/10W,DA,TP,2012	
R404	2007-000290	70795683	R-CHIP;100OHM,5%,1/10W,DA,TP,2012	
R406	2001-000290	70795006	R-CARBON;10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R407	2007-000493	70795526	R-CHIP;2.2KOHM,5%,1/10W,DA,TP,2012	
R408	2001-000221	BY230019	R-CARBON;1.2KOHM,5%,1/8W,AA,TP,1.8X3.2M	
R4N01	2007-000468	70795515	R-CHIP;1KOHM,5%,1/10W,DA,TP,2012	
R4N02	2007-000290	70795683	R-CHIP;100OHM,5%,1/10W,DA,TP,2012	
R4N03	2007-000290	70795683	R-CHIP;100OHM,5%,1/10W,DA,TP,2012	
R4N04	2007-000653	70795696	R-CHIP;27KOHM,5%,1/10W,DA,TP,2012	
R4N05	2001-000281	70795004	R-CARBON;100OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R4N06	2001-000281	70795004	R-CARBON;100OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R501	2007-000003	BY230220	R-CHIP;43KOHM,5%,1/10W,DA,TP,2012	
R502	2007-001055	70795541	R-CHIP;6.2KOHM,5%,1/10W,DA,TP,2012	
R503	2007-000931	70795704	R-CHIP;470OHM,5%,1/10W,DA,TP,2012	
R505	2007-000003	BY230220	R-CHIP;43KOHM,5%,1/10W,DA,TP,2012	
R506	2007-001055	70795541	R-CHIP;6.2KOHM,5%,1/10W,DA,TP,2012	
R507	2001-000766	70795038	R-CARBON;43KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R508	2007-001055	70795541	R-CHIP;6.2KOHM,5%,1/10W,DA,TP,2012	
R509	2007-001055	70795541	R-CHIP;6.2KOHM,5%,1/10W,DA,TP,2012	
R510	2001-000766	70795038	R-CARBON;43KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R511	2007-000355	70795686	R-CHIP;12KOHM,5%,1/10W,DA,TP,2012	
R512	2007-000774	70795533	R-CHIP;33KOHM,5%,1/10W,DA,TP,2012	
R514	2007-000941	70795705	R-CHIP;47KOHM,5%,1/10W,DA,TP,2012	
R516	2001-000786	70795041	R-CARBON;47KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R517	2007-001055	70795541	R-CHIP;6.2KOHM,5%,1/10W,DA,TP,2012	
R518	2007-000003	BY230220	R-CHIP;43KOHM,5%,1/10W,DA,TP,2012	
R519	2007-001055	70795541	R-CHIP;6.2KOHM,5%,1/10W,DA,TP,2012	
R520	2007-000003	BY230220	R-CHIP;43KOHM,5%,1/10W,DA,TP,2012	
R521	2007-001071	70795542	R-CHIP;6.8KOHM,5%,1/10W,DA,TP,2012	
R522	2007-001071	70795542	R-CHIP;6.8KOHM,5%,1/10W,DA,TP,2012	
R533	2007-000003	BY230220	R-CHIP;43KOHM,5%,1/10W,DA,TP,2012	
R540	2007-000003	BY230220	R-CHIP;43KOHM,5%,1/10W,DA,TP,2012	
R545	2007-000511	BY230239	R-CHIP;2.4KOHM,5%,1/10W,DA,TP,2012	
R546	2007-000468	70795515	R-CHIP;1KOHM,5%,1/10W,DA,TP,2012	
R547	2007-000468	70795515	R-CHIP;1KOHM,5%,1/10W,DA,TP,2012	
R550	2001-000766	70795038	R-CARBON;43KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R551	2007-000546	70795692	R-CHIP;20KOHM,5%,1/10W,DA,TP,2012	
R552	2001-000766	70795038	R-CARBON;43KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R553	2007-000546	70795692	R-CHIP;20KOHM,5%,1/10W,DA,TP,2012	
R570	2007-000468	70795515	R-CHIP;1KOHM,5%,1/10W,DA,TP,2012	
R571	2007-001039	70795708	R-CHIP;56KOHM,5%,1/10W,DA,TP,2012	
R601	2001-000429	70795005	R-CARBON;1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R602	2001-000429	70795005	R-CARBON;1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R603	2001-000429	70795005	R-CARBON;1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R604	2001-000429	70795005	R-CARBON;1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R605	2001-000429	70795005	R-CARBON;1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R607	2001-000429	70795005	R-CARBON;1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R608	2001-000864	70795047	R-CARBON;56KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R609	2001-000864	70795047	R-CARBON;56KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R610	2001-000429	70795005	R-CARBON;1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R611	2001-000429	70795005	R-CARBON;1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R614	2001-000429	70795005	R-CARBON;1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R630	2001-000290	70795006	R-CARBON;10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R631	2007-000468	70795515	R-CHIP;1KOHM,5%,1/10W,DA,TP,2012	
R632	2001-000837	70795045	R-CARBON;51KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R637	2007-000947	BY230225	R-CHIP;47OHM,5%,1/10W,DA,TP,2012	
R638	2001-000429	70795005	R-CARBON;1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	

Loc.No.	TSB Parts No.	Reference No.	Description ; Specification	Remark
R639	2001-000429	70795005	R-CARBON;1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R640	2007-000300	70795516	R-CHIP;10KOHM,5%,1/10W,DA,TP,2012	
R641	2007-000931	70795704	R-CHIP;470OHM,5%,1/10W,DA,TP,2012	
R642	2007-000931	70795704	R-CHIP;470OHM,5%,1/10W,DA,TP,2012	
R644	2001-000429	70795005	R-CARBON;1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R651	2007-000001	BY230091	R-CHIP;68KOHM,5%,1/10W,DA,TP,2012	
R656	2007-000300	70795516	R-CHIP;10KOHM,5%,1/10W,DA,TP,2012	
R660	2001-000786	70795041	R-CARBON;47KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R661	2007-000774	70795533	R-CHIP;33KOHM,5%,1/10W,DA,TP,2012	
R666	2007-000931	70795704	R-CHIP;470OHM,5%,1/10W,DA,TP,2012	
R667	2007-000931	70795704	R-CHIP;470OHM,5%,1/10W,DA,TP,2012	
R668	2007-000300	70795516	R-CHIP;10KOHM,5%,1/10W,DA,TP,2012	
R669	2007-000300	70795516	R-CHIP;10KOHM,5%,1/10W,DA,TP,2012	
R670	2007-000872	70795589	R-CHIP;4.7KOHM,5%,1/10W,DA,TP,2012	
R671	2007-000872	70795589	R-CHIP;4.7KOHM,5%,1/10W,DA,TP,2012	
R672	2007-000872	70795589	R-CHIP;4.7KOHM,5%,1/10W,DA,TP,2012	
R674	2001-000290	70795006	R-CARBON;10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R675	2001-000032	BY230164	R-CARBON;180OHM,5%,1/4W,AA,TP,2.4X6.4MM	
R676	2007-000738	72532205	R-CHIP;30KOHM,5%,1/10W,DA,TP,2012	
R678	2007-000586	70795527	R-CHIP;22KOHM,5%,1/10W,DA,TP,2012	
R679	2001-000515	70795019	R-CARBON;220OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R682	2007-000586	70795527	R-CHIP;22KOHM,5%,1/10W,DA,TP,2012	
R685	2007-000981	70795539	R-CHIP;5.6KOHM,5%,1/10W,DA,TP,2012	
R690	2007-001039	70795708	R-CHIP;56KOHM,5%,1/10W,DA,TP,2012	
R691	2001-000515	70795019	R-CARBON;220OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R693	2007-000941	70795705	R-CHIP;47KOHM,5%,1/10W,DA,TP,2012	
R694	2007-000941	70795705	R-CHIP;47KOHM,5%,1/10W,DA,TP,2012	
R696	2001-000429	70795005	R-CARBON;1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R698	2007-000300	70795516	R-CHIP;10KOHM,5%,1/10W,DA,TP,2012	
R6B01	2001-000384	70796024	R-CARBON;160OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R6B02	2001-000429	70795005	R-CARBON;1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R6B03	2001-000429	70795005	R-CARBON;1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R6B08	2001-000110	BY230166	R-CARBON;10OHM,5%,1/4W,AA,TP,2.4X6.4MM	
R6B10	2001-000362	70796067	R-CARBON;150OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R6B11	2001-000362	70796067	R-CARBON;150OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R6P01	2001-000281	70795004	R-CARBON;100OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R6P02	2001-000281	70795004	R-CARBON;100OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R6P03	2007-000518	70795529	R-CHIP;2.7KOHM,5%,1/10W,DA,TP,2012	
R6P04	2007-000300	70795516	R-CHIP;10KOHM,5%,1/10W,DA,TP,2012	
R6P05	2001-000290	70795006	R-CARBON;10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R6P06	2007-000981	70795539	R-CHIP;5.6KOHM,5%,1/10W,DA,TP,2012	
R6P07	2007-000572	70795525	R-CHIP;220OHM,5%,1/10W,DA,TP,2012	
R6P08	2007-000822	70795534	R-CHIP;390OHM,5%,1/10W,DA,TP,2012	
R6P09	2007-000029	70795513	R-CHIP;0OHM,5%,1/10W,DA,TP,2012	
R6P10	2001-000515	70795019	R-CARBON;220OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R727	2007-000409	70795521	R-CHIP;15KOHM,5%,1/10W,DA,TP,2012	
R728	2007-000409	70795521	R-CHIP;15KOHM,5%,1/10W,DA,TP,2012	
R729	2007-000409	70795521	R-CHIP;15KOHM,5%,1/10W,DA,TP,2012	
R730	2007-000409	70795521	R-CHIP;15KOHM,5%,1/10W,DA,TP,2012	
R731	2007-000300	70795516	R-CHIP;10KOHM,5%,1/10W,DA,TP,2012	
R732	2007-000658	BY230222	R-CHIP;27OHM,5%,1/10W,DA,TP,2012	
R733	2007-000658	BY230222	R-CHIP;27OHM,5%,1/10W,DA,TP,2012	
R734	2007-000658	BY230222	R-CHIP;27OHM,5%,1/10W,DA,TP,2012	
R735	2007-000658	BY230222	R-CHIP;27OHM,5%,1/10W,DA,TP,2012	
R736	2007-000658	BY230222	R-CHIP;27OHM,5%,1/10W,DA,TP,2012	
R737	2007-000658	BY230222	R-CHIP;27OHM,5%,1/10W,DA,TP,2012	
R738	2007-000658	BY230222	R-CHIP;27OHM,5%,1/10W,DA,TP,2012	
R741	2007-000658	BY230222	R-CHIP;27OHM,5%,1/10W,DA,TP,2012	
R750	2007-000477	70795517	R-CHIP;1MOHM,5%,1/10W,DA,TP,2012	
R751	2007-000653	70795696	R-CHIP;27KOHM,5%,1/10W,DA,TP,2012	
R752	2007-000572	70795525	R-CHIP;220OHM,5%,1/10W,DA,TP,2012	
R753	2007-000282	70795684	R-CHIP;100KOHM,5%,1/10W,DA,TP,2012	
R777	2007-000586	70795527	R-CHIP;22KOHM,5%,1/10W,DA,TP,2012	
R7W01	2001-000290	70795006	R-CARBON;10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R7W02	2001-000273	70795007	R-CARBON;100KOHM,5%,1/8W,AA,TP,1.8X3.2M	
R7W03	2001-000290	70795006	R-CARBON;10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R7W04	2001-000273	70795007	R-CARBON;100KOHM,5%,1/8W,AA,TP,1.8X3.2M	
R7W05	2001-000786	70795041	R-CARBON;47KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R7W06	2001-000786	70795041	R-CARBON;47KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R7W07	2001-000786	70795041	R-CARBON;47KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R7W08	2001-000786	70795041	R-CARBON;47KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R802	2007-000267	70795523	R-CHIP;1.8KOHM,5%,1/10W,DA,TP,2012	
R803	2007-000267	70795523	R-CHIP;1.8KOHM,5%,1/10W,DA,TP,2012	
R805	2007-000468	70795515	R-CHIP;1KOHM,5%,1/10W,DA,TP,2012	
R806	2007-000468	70795515	R-CHIP;1KOHM,5%,1/10W,DA,TP,2012	
R807	2007-001166	BY230097	R-CHIP;75OHM,5%,1/10W,DA,TP,2012	
R808	2007-001166	BY230097	R-CHIP;75OHM,5%,1/10W,DA,TP,2012	
R809	2001-000969	70795054	R-CARBON;75OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R810	2007-000468	70795515	R-CHIP;1KOHM,5%,1/10W,DA,TP,2012	

## Replacement Parts List

Loc.No.	TSB Parts No.	Reference No.	Description ; Specification	Remark
R811	2007-000468	70795515	R-CHIP;1KOHM,5%,1/10W,DA,TP,2012	
R812	2007-001166	BY230097	R-CHIP;750HM,5%,1/10W,DA,TP,2012	
R813	2007-000468	70795515	R-CHIP;1KOHM,5%,1/10W,DA,TP,2012	
R814	2007-000468	70795515	R-CHIP;1KOHM,5%,1/10W,DA,TP,2012	
R815	2007-000468	70795515	R-CHIP;1KOHM,5%,1/10W,DA,TP,2012	
R816	2007-000468	70795515	R-CHIP;1KOHM,5%,1/10W,DA,TP,2012	
R819	2007-000468	70795515	R-CHIP;1KOHM,5%,1/10W,DA,TP,2012	
R820	2007-000468	70795515	R-CHIP;1KOHM,5%,1/10W,DA,TP,2012	
R821	2007-000774	70795533	R-CHIP;33KOHM,5%,1/10W,DA,TP,2012	
R822	2007-000586	70795527	R-CHIP;22KOHM,5%,1/10W,DA,TP,2012	
R828	2001-000281	70795004	R-CARBON;1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R839	2001-000281	70795004	R-CARBON;1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R842	2001-000855	BY230025	R-CARBON;5600HM,5%,1/4W,AA,TP,2.4X6.4MM	
R843	2007-000030	70795538	R-CHIP;5600HM,5%,1/10W,DA,TP,2012	
RM24	2001-000800	70795044	R-CARBON;5.1KOHM,5%,1/8W,AA,TP,1.8X3.2M	
RM29	2001-000273	70795007	R-CARBON;100KOHM,5%,1/8W,AA,TP,1.8X3.2M	
RM30	2001-000290	70795006	R-CARBON;10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
RM31	2001-000800	70795044	R-CARBON;5.1KOHM,5%,1/8W,AA,TP,1.8X3.2M	
RM32	2001-000273	70795007	R-CARBON;100KOHM,5%,1/8W,AA,TP,1.8X3.2M	
RM33	2001-000008	70795014	R-CARBON;15KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
RM34	2001-000008	70795014	R-CARBON;15KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
RM35	2001-000273	70795007	R-CARBON;100KOHM,5%,1/8W,AA,TP,1.8X3.2M	
RM36	2001-000290	70795006	R-CARBON;10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
RM37	2001-000429	70795005	R-CARBON;1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
RM38	2001-000429	70795005	R-CARBON;1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
W062	2001-000429	70795005	R-CARBON;1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
W064	2001-000429	70795005	R-CARBON;1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
W066	2001-000429	70795005	R-CARBON;1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
W172	2007-000029	70795513	R-CHIP;0OHM,5%,1/10W,DA,TP,2012	
W199	2007-000029	70795513	R-CHIP;0OHM,5%,1/10W,DA,TP,2012	
W376	2007-000029	70795513	R-CHIP;0OHM,5%,1/10W,DA,TP,2012	
W384	2007-000029	70795513	R-CHIP;0OHM,5%,1/10W,DA,TP,2012	
W386	2007-000029	70795513	R-CHIP;0OHM,5%,1/10W,DA,TP,2012	
W515	2007-000029	70795513	R-CHIP;0OHM,5%,1/10W,DA,TP,2012	
W701	2007-000029	70795513	R-CHIP;0OHM,5%,1/10W,DA,TP,2012	
W702	2007-000029	70795513	R-CHIP;0OHM,5%,1/10W,DA,TP,2012	
W703	2007-000029	70795513	R-CHIP;0OHM,5%,1/10W,DA,TP,2012	
W752	2007-000029	70795513	R-CHIP;0OHM,5%,1/10W,DA,TP,2012	

## &lt; MISCELLANEOUS &gt;

CN1SS1	3711-000178	70796223	CONNECTOR-HEADER;1WALL,2P,1R,3.96mm,STRA	
CN301	3708-000391	70796387	CONNECTOR-FPC/FFC/PIC;10P,1.25mm,STRAIGH	
CN3A01	3708-001165	BY634023	CONNECTOR-FPC/FFC/PIC;6P,1.25mm,STRAIGHT	
CN3A02	3710-001648	BY634412	CONNECTOR-SOCKET;2P,1R,2.5mm,STRAIGHT,SN	
CN604	3711-004833	BY634669	CONNECTOR-HEADER;BOX,12P,2R,2MM,STRAIGHT	
CN6B01	3711-004775	BY634420	CONNECTOR-HEADER;NOWALL,5P,1R,2.5mm,ANGL	
CN701	3711-004773	BY634433	CONNECTOR-HEADER;3WALL,12P,1R,2mm,STRAIG	
CN708	3711-004774	BY634434	CONNECTOR-HEADER;3WALL,15P,1R,2mm,STRAIG	
CN7FT1	3710-001692	BY634432	CONNECTOR-SOCKET;12P,1R,2mm,ANGLE,SN	
CN7FT2	3710-001691	BY634431	CONNECTOR-SOCKET;15P,1R,2mm,ANGLE,SN	
DT701	AC07-00033A	BY634724	LED DISPLAY;LTG-0131M,-,47,8,6,552*18.50	
F1SS01	3601-001123	BY634112	FUSE-CARTRIDGE;250V,1.6A,TIME-LAG,CERAMI	△
GP401	AC63-00076A	BY634725	GROUND-RF;SV-653F,SUS304,T0.3,-,-,-	
JC801	3722-001573	BY634413	JACK-SCART;42P/2R,-,SN,BLK/BLU,#20-28	
JC802	3722-001576	BY634414	JACK-PIN;2P,3.5mm,NI,BLK,-	
JK702	AC37-00006A	BY634408	JACK-PIN;3.2MM,DPSE-9872,3P,ARREY,10MM	
JK703	AC37-00020A	BY634437	JACK-HEADPHONE;BULK,UEJ-CV-007,-,6P,-	
JS701	AC64-00602A	BY634473	DIAL-J/S;J/S DIAL,MOLD,8PIN,BLACK,DJS-1	
PT1SS1	AC26-00002G	BY634407	TRANS SWITCHING;EE2621,SV-643F,-,230V,FE	△
RM701	AC32-00006A	BY630162	MODULE REMOCON;TSOP2238WE1,38KHZ,-,5.08m	
RS601	AC34-20100B	BY632005	SWITCH-REC;-,-,X-9,-	
SW601	AC34-20100A	BY632004	SWITCH-MODE;-,-,X-9,-	
TM401	AC40-00014A	BY634728	TM BLOCK;TCMK0601PD13A,G/I/K(MONO,HIFI)	
VA1SS1	1405-001026	BY634022	VARIATOR;470V,600A,9x7mm,TP	△
XT301	2801-001397	BY633009	CRYSTAL-UNIT;4.433619MHz,20ppm,28-AAA,S,	
XT4N01	2801-003171	BY633011	CRYSTAL-UNIT;18.432MHz,20PPM,28-AAM,4PF,	
XT602	2801-003139	BY633010	CRYSTAL-UNIT;8MHz,50ppm,28-AAA,22pF,80oh	
XT750	2801-003868	BY633014	CRYSTAL-UNIT;5MHz,30ppm,28-AAA,12pF,100o	

# **TOSHIBA VIDEO PRODUCTS PTE LTD**

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SINGAPORE 119968